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PRINCIPLES OF ECONOMICS

BY

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PREFACE

SEVERAL years of experience in teaching elementary economics have convinced the writer that the best textbooks hitherto available, although excellent in many respects, have certain characteristics which make the subject unnecessarily difficult for beginners. Among these characteristics are a serious lack of unity and continuity of exposition and a tone of unreality in the discussion of value and distribution. These defects of style and exposition tend to bore and confuse immature students, and as a result they lean too heavily upon lectures and class discussion and devote too little time to study. Consequently they gain only a superficial knowledge of their subject — the hours in class being too few to cover the field thoroughly.

The present book represents an attempt to write a text in elementary economics which college students will find so readable and intelligible that instructors may reasonably expect them to have read and understood the assignments before coming to class. In trying to achieve this purpose the author has departed from the conventional method of dividing the subject into a number of books or parts, each representing a more or less complete treatment of a distinct division of the field, such as production, exchange, distribution, and so on, and has adopted a novel method of approach which should perhaps be explained. The central idea upon which the whole arrangement of the book is based, is this:

The subject of elementary economics may be developed in a logical and orderly way, with a natural sequence of chapters, each chapter growing out of and developing further the preceding discussion, somewhat in the way that the plot is unfolded and developed in a novel or play. To the extent that this logical and orderly development of the subject can be realized there will be achieved unity and continuity of exposition, a prime requisite if the student is to be interested and informed instead of being merely bored and befuddled.

As a further explanation of the order of sequence of the chapters and as an aid to the student, the following summary of the book is

presented, with the numbers of the respective chapters covered by the summary indicated in parentheses:

(1) Men want more goods than are freely provided by nature and have learned to labor to produce them. (2) Goods being desirable and scarce and labor being irksome, men have contrived in various ways to improve methods of production — to increase the quantity of goods produced per hour of labor. (3) Division of labor, representing a great improvement in methods of production, made exchange and the use of money necessary and gave rise to price problems. (4) Production for sale or exchange brought the problem of business organization and business profits. (5–6) Consumers buying goods with money incomes and business men buying to sell at a profit are deeply concerned with market price and its interrelations with demand and supply, interrelations which cannot be understood without careful study. (7) A special and important price problem is that of the price of goods used by business men for business purposes, called in this book producers' goods, and this leads to a study of demand schedules for producers' goods. (8) Under competitive conditions a strong tendency exists for average costs of production in any industry to equal the market price of the product, leaving the average business man without profit. (9) In extractive industries, such as agriculture, costs of production per unit of product tend to increase with expansion of output as a result of differences in the qualities of land and the operation of the law of diminishing returns. (10) Out of conditions of increasing cost emerge the problem of the rent and price of land, (11) the problem of indirect costs in agriculture, and (12) the problem of the unearned increment, or special taxation of land. (13) To some extent conditions tending to bring increasing costs are found also in manufacturing industries; but here economies of large-scale production may more than offset the tendency to increasing cost and bring about decreasing costs as the output expands in individual plants and in the industry as a whole. (14) In manufacturing and some other industries economies of large-scale production and heavy indirect costs tend to bring about exceedingly sharp competition which may prove ruinous to the competitors. (15) As a result business men tend to combine to restrict competition or to establish monopolies. (16) Since combinations in restraint of trade and monopolies tend to re-

strict output and to raise prices above the competitive level, they have been prosecuted under state and federal law and in some cases destroyed. (17) But public utility monopolies for special reasons are tolerated and encouraged by government, subject to government rate regulation. (18) In railroad transportation partial monopoly is permitted and rates are regulated by government to prevent both ruinous competition and monopolistic extortion.

(19) Wages constitute an important element of costs in all industries, and the main source of income of the mass of the people. Wages represent prices paid for one great class of producers' goods, and wage determination represents, therefore, merely a special application of the principles discussed under the subject of demand schedules for producers' goods, with some complications. (20) Differences in wages arise mainly from differences in the nature of the work to be performed and differences in the natural ability, training, and experience of men. (21) Conditions of labor and wages may be substantially altered by labor organization and (22) by labor legislation. (23–24) Interest on loans or capital is another important cost item of business men and a source of great confusion. Comparatively few persons understand why interest is paid or what determines the rate. Fundamentally interest represents a premium on present goods in terms of future goods.

Certain factors not yet discussed have an important bearing upon the production of goods, the prices of commodities, and the four shares in distribution — profits, rent, wages, and interest. These factors include (25–27) the quantity and kinds of money used, (28–30) banking and regulation of banking, (31) insurance and speculation, (32–35) domestic and foreign exchange and international trade, and (36–38) theories of the proper functions of government and theories and systems of taxation. In addition to the various problems and evils of the present industrial system that have already been considered there may be noted (39) certain special problems in agriculture that deserve particular consideration, and (40) evils of various kinds which may be eradicated by concerted efforts of the people in the interest of the general welfare.

The critical reader will find in this book a restatement and a modification of orthodox doctrines rather than a new system of economics. What contribution to economic theory it may contain will be found

mainly in the chapter on demand schedules for producers' goods, and the application of the doctrines of that chapter to the subjects of profit, rent, wages, and interest.

It is needless to point out that the author has borrowed much from other writers on economics, but he desires to acknowledge in particular his debt to the published works of Professors T. N. Carver, Irving Fisher, W. Z. Ripley, and F. W. Taussig, and to the classroom instruction of Professors Bullock, Gay, Ripley, and Taussig, at Harvard University. The writer is under obligation also to Professor E. S. Furniss, of Yale University, who read the entire manuscript and offered numerous helpful suggestions for improvement, and to Helen B. Rufener for aid in preparing the manuscript for the printer.

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PRINCIPLES OF ECONOMICS

CHAPTER I

WANTS, GOODS, AND WELFARE

1. Wants of human beings. There are living upon the earth more than 1,750,000,000 human beings. If they were deprived of air for five minutes the race would be extinct. Without drink they could survive a few days at most. Without food the more hardy individuals might live a few weeks. Exposed to the elements, without clothing, shelter, or fire, some would survive, but hundreds of millions would die like flies in autumn. Many of those who lived through such exposure would in a short time fall victims to the attacks of wild beasts, or insidious germs, or the murderous onslaughts of their fellows, unless they had the means to defend themselves against aggression. Absolutely necessary for existence, therefore, are air, food, drink, and means of protection against the elements and hostile living organisms. Men want these things because they want to live.

The wants of civilized human beings are, however, not confined to the necessaries of life, such as every animal requires, but embrace a vast variety of articles which the ox, the dog, or even the savage, would view with indifference. The more highly civilized and cultured people are, the more wants they have and the more things are required to satisfy them.

2. Wants satisfied by goods. All things capable of satisfying human wants, either directly or indirectly, are called goods. To enumerate all the kinds of goods required to satisfy the wants of cultured people would be a tedious — perhaps an impossible — task. The magnitude of such a task is suggested by the size of the catalogues of large mail-order houses which strive to offer goods to satisfy every conceivable desire of their customers. Large as such catalogues are, they by no means contain a complete enumeration of all goods desired by all people. Most of the thousands of items listed in such a volume might be grouped in a few great classes of

goods, such as food, drink, medicine, building materials, furniture, fuel, clothing, ornaments, playthings, tools, machinery, and weapons. Furthermore, it may be noted that all these goods — enormous as is the number — are wanted to satisfy a few great interests — the interests of health, knowledge, art, justice, and sociability. Unless these interests are reasonably well satisfied for most of the individuals of a nation, that nation cannot be said to be enjoying a high standard of living or a high degree of welfare.

3. **The earth a storehouse of materials.** The things which men must have to satisfy their wants are with a few exceptions drawn from one great storehouse of materials — the earth. This earth, which is man's estate over which he has been given dominion, is so large that to the thoughtless or uneducated person it often seems a vague expanse of land and sea stretching out on all sides to infinity, a vast area with no recognizable limits. It is well to bear in mind, however, that this source of all the goods we use, except the light and heat from the heavens, is a sphere of moderate size, less than 8000 miles in diameter and 25,000 miles in circumference. It is even more important to remember that the area of the earth is in round numbers 197,000,000 square miles, since from an economic point of view we are more interested in the area or surface of the earth than we are in its diameter or circumference. Three fourths of the surface is covered with water, and of the one fourth that is land, less than three fifths is fertile. We may calculate, then, that for each of the 1,750,000,000 human beings, this earth contains only about eleven acres of fertile land. Since the population of the earth continues to grow while its area remains always the same, the number of fertile acres per capita grows ever less and less. A hundred years ago it was more than twenty; a hundred years hence it may be less than five. Along with the solid earth human beings hold title to the air and the light from sun, moon, and stars. But beyond the bounds of the earth they cannot go. On this not very large planet these hundreds of millions are cooped up once for all more securely than Napoleon at Saint Helena. They can only gaze wistfully at the worlds beyond.

4. **Materials of the earth divided into three classes.** Throughout its history the human race has spent much energy in exploring its planetary estate, and has found in this labor romance and ad-

venture as well as the more material rewards of discovery. Just as when Robinson Crusoe, in exploring his stranded ship, found therein some things which he could use for direct enjoyment, such as bread and cheese, some things which he could use to advantage in making other things, such as saws, knives, and other tools, and some things which under the circumstances were useless to him, so men, in exploring the great storehouse of nature, the earth, make similar discoveries. They find some things provided free by nature ready-made to satisfy their desires, e.g., wild berries, nuts, and pure water. They find some things, which, although not capable of affording direct and immediate enjoyment, can be used to advantage in making enjoyable goods, such as fertile soil, forest trees, and rich mineral ores. And they find some things of no conceivable use because the labor involved in putting them into a usable condition is too great to make it worth while, such as desert lands, low-grade ore, or thin seams of coal far underground.

5. Consumers' goods. Goods which are used to afford direct and immediate satisfaction of wants are called consumers' goods to distinguish them from producers' goods, or goods used in business or to produce other goods. Consumers' goods provided free by nature ready for human enjoyment are few in number compared with the vast variety of goods the civilized man desires. And most of those that are so provided are in such limited quantity that there are not enough to go round. Air and sunshine are among the small number of consumers' goods which nature supplies in such profusion that they are free to all. Wild berries, nuts, and pure water are examples of other gifts of nature to man, ready-made for his enjoyment, but found in such limited amounts and in such narrowly restricted localities that only a favored few can enjoy them without labor and without price.

6. Producers' goods. Materials of the earth which man cannot use in their natural state to satisfy his wants directly, but which he can use advantageously in producing consumers' goods if he cares to labor, are more abundant and more varied in character than ready-made consumers' goods. Included in this class of goods are agricultural land, forests, mineral deposits, and waterfalls. With these things man may labor to produce the things he wants to satisfy numberless desires. From the agricultural land, for instance, he gets

his wheat, rye, rice, sugar, cotton; from the forests, timber for his houses, furniture, and other articles; from the mineral deposits, iron, lead, copper, zinc, and other metals used in making innumerable objects to satisfy his wants.

7. Useless materials. By far the larger part of the materials of the earth, however, fall in the third great class — materials which are of no use to man because they are in such a form or location, or available only at such a time, that he can use them advantageously neither to satisfy his wants directly nor to make other things that he wants. These useless materials include at present all things more than a mile or two beneath the surface of the earth, many low-grade mineral deposits near or on the surface, millions of square miles of land unfit for cultivation, and, we might add, the vast reaches of the oceans, except that these serve man as a means of transportation, provide him with a small part of his food supply, and are the reservoirs from which the sun draws the rain that waters his lands. Although we call these materials useless to man, we must note that they are not absolutely useless. Whether or not man can use any of them to advantage depends upon the stage of his industrial development. As population grows and industrial processes become more effective, many materials in past times considered useless are utilized to good advantage. Examples of this are land put under irrigation, low-grade gold ore made available by improved processes of extraction, tropical land freed from the menace of disease-producing insects. Still, with all conceivable improvements in methods of production man will be able to use only a small part of the contents of the earth to satisfy his wants — he will continue in centuries to come to do as he has done. He will merely scratch the surface, and only part of the surface at that.

8. Production, utility, usefulness. If human beings are to enjoy more consumers' goods than the comparatively small quantity and limited variety provided free by nature, they must labor to produce them. Now, although most persons have labored to produce goods, many do not understand clearly just what is meant by production. Obviously, when we say that a man has produced something, we do not mean that he has created something from nothing. That is impossible, since it is an elementary law of physics that man can neither create nor destroy matter. All that man can do is to produce some

change in matter. Production consists essentially in changing something in such a way that it becomes more useful. For example, when men change clay found on a hillside into bricks and arrange the bricks together with other materials in the form of a house, they make the clay more useful. When they cut down a forest tree and transform it into chairs and tables, they make it more useful.

In slightly different words, and somewhat more precisely, production may be said to consist in so changing things as to increase their utility. By "utility" we mean the capacity to satisfy human wants, and there is a shade of difference between the meaning of "utility" and "usefulness." A thing has utility for a man if it satisfies his desire, whether or not his desire is a wholesome one. Poison has utility to the man who wants to commit suicide or quietly to dispose of his neighbor's dog. Unwholesome sweets, or liquors, have utility to those whom they satisfy, although they may be destructive of health. On the other hand, usefulness implies the capacity to satisfy a wholesome desire. We think of something as useful when it is good for the user — when it promotes welfare. The economist is more concerned with utility than with usefulness. This is not because he is indifferent to welfare and is willing to condone or justify the production of unwholesome or destructive products. It is because the greatest single problem in economics is the price problem, and prices, as we shall see later, are determined largely by utility rather than by usefulness; by the power of the things concerned to satisfy wants rather than by their power to promote welfare. Fortunately, however, most things that satisfy people's wants are conducive to welfare if used in moderation. It is not the task of the economist to point out the exceptions. It is better to leave that to the physician, the chemist, the sociologist, or the political scientist. If some greatly desired commodity is widely believed to be unwholesome, laws may be enacted prohibiting its manufacture and sale, as in the case of wine, beer, and whiskey in the United States.

9. Labor that creates utility is productive. Since production consists essentially in changing something in such a way as to make it more capable of satisfying human wants, it follows that any person producing such a change is engaged in productive labor. There is a distinct tendency, however, to consider productive only those per-

sons whose labor changes the form of some article, as the shoemaker changes the form of pieces of leather until they represent a shoe, or as the carpenter joins boards together in the form of a door. We speak of these workers as making a shoe, or making a door, implying that they have created something, and we put the stamp of our approval upon their labor as productive. We do not in the same way speak of the man who transports the boards from which the door is made as having made something. Nor do we commonly think of the shoe dealer who keeps a supply of shoes in his store as having helped to make the shoes. It is easy to fall into the habit of thinking that since these men "make" nothing, they do not aid in the process of production. We may not put the stamp of our approval upon their work, and we may begrudge them a fair reward for their labor. The fact that many people hold this naïve and fallacious notion of production makes it easy to stir up resentment against the railroads when their rates seem high, and against retail dealers when they charge the customer more for goods than they pay. It is possible that railroad rates for some reason may be unreasonably high, or that the dealer's margin of profit may be too wide, but we should not forget the fundamental fact that any labor directed toward producing a change in materials, adding to their utility, or their capacity to satisfy wants, is productive labor.

10. **Form, place, and time utility.** The nature of the changes that may be made in a thing to make it more capable of satisfying a want will be readily understood if we remember that before a thing can satisfy a want it must be in the right form, and in the right place, at the right time. Since things must be in the right place at the right time, as well as in the right form for enjoyment or use, any labor directed toward putting them in the right place at the right time is productive labor just as truly as labor expended in changing their form. A cigarmaker, for example, changes tobacco into the form desired by smokers. Railroad employees or truck-drivers transport the tobacco to the cigar factory — putting it into the right place to be used by the cigarmaker — and transport the finished cigars to the cigar store, a convenient place for the smokers to buy them. The cigar dealer, by keeping cigars on hand at all times, and being ready to hand them out at any time over his counter, makes them available at the time the smokers want them. These three classes

of workers have all shared in the labor of putting the tobacco into the right form, and into the right place, at the right time, to satisfy a human want.

If we analyze processes of production carefully we find that all changes made in materials to produce all sorts of products represent changes in form, or in place, or in time. Some writers mention other kinds of changes, as changes in composition when the baker bakes bread from dough, or changes in quantity when the retail grocer breaks up a barrel of sugar into ten-pound bags. Such changes may, however, be thought of merely as changes in form of a particular kind. The main point for the student to carry forward is not the number of kinds of changes that may be made in things to make them more useful, but the fact that any labor directed toward making something more capable of satisfying a human want is productive labor. In other words, any labor is productive that creates utility. Economists speak of things as having form utility when they are in the right form, place utility when they are in the right place, and time utility when they are available at the right time, and they recognize as productive all laborers whose efforts lead to the creation of utility of form, place, or time.

11. Difference between goods and services superficial. Writers often distinguish between goods and services. They speak of workers whose labor produces or helps to produce some tangible, material object, as producing a good, and of other workers whose labor, although useful, does not apparently result in a tangible material object, as performing services. Included in the group of workers who are commonly thought of as rendering service rather than producing goods are household servants, barbers, musicians, lawyers, physicians. We have, however, no such sharp distinction here as one might think. The distinction is superficial rather than fundamental. The labor of both these groups of workers is directed toward satisfying human wants, and both groups may in this sense be said to render service. Both groups, too, produce changes in material objects, making these objects more capable of satisfying human wants. But in the one case these changes are made in objects which by their nature may become objects of merchandise, such as loaves of bread, pairs of shoes, or tons of coal. But in the other case the changes do not become embedded in material objects

that can be thrown on the market, as when a housemaid scrubs the kitchen floor or washes the windows.

If the creation of a vendible commodity rather than the creation of utility were made the test of productive labor, as has sometimes been done, the labor of the housemaid as illustrated above would be considered unproductive. By the same reasoning no musician, however talented, would have been a productive laborer before the invention of the phonograph. But after this invention was made he would at once have become a productive laborer if his music had been stored up in a record and had thus become an object of commerce that could be passed from hand to hand. Such distinctions are illogical. It is often convenient, and by no means incorrect, to speak of some persons as producing goods and of others as performing services; but one must be on one's guard against implying or concluding that the one class of these laborers is necessarily more productive than the other.

12. Unproductive labor. The question may be raised, Is there such a thing as unproductive labor or an unproductive laborer? The answer is yes. Labor may be considered unproductive when it does not add to the sum total of goods or services available for the satisfaction of human wants. Robbers and beggars must thus be considered unproductive no matter how industriously they may ply their trade. They add to their own store of goods only what they take from others. Unlike the business man who buys and sells, or the productive laborer working for wages, they satisfy their wants at other people's expense, giving nothing in return. One may, of course, speculate on the possibilities of a Robin Hood adding to the sum total of human satisfactions by taking from the rich their superfluity and giving to the poor to relieve their distress. Obviously the utility of the goods thus transferred from the rich to the poor would be increased, although the physical quantity of goods remained the same. But if anything is to be gained by such a leveling process it can be achieved to better advantage in some more orderly way. Robbers not only do not add to the total stock of goods available for human consumption, but by their violent methods of acquisition they seriously interfere with the productive labor of others.

Some kinds of labor are neither clearly productive nor unproduc-

tive; as, for instance, competitive advertising. If such advertising by manufacturers or merchants merely results in each drawing away from each of the others some of his customers, and leaves the total quantity and the average quality of the goods sold about the same as before, then all the labor applied to advertising may be considered unproductive or wasted. If, however, the advertising is educational or informative in character and materially aids the buyers in deciding what, where, when, and how much to buy, to the end that they may satisfy their wants more fully by spending their money to better advantage, it may represent highly productive labor. Undoubtedly we have advertising of both these kinds. Our unproductive competitive advertising represents merely one of various kinds of waste of the competitive industrial system. Other examples of unproductive labor or laborers may readily be cited. There are government employees for whom jobs are created for political reasons — jobs which represent unproductive labor if they require any labor at all. There are business men who through poor management produce at a loss. This implies, although it does not prove, that their labor of direction is not only unproductive, but is actually destructive of wealth. If, for instance, an incompetent business man at a cost, for labor, materials, and other means of production, of $1,000,000, produces a product that is unsalable because it can satisfy no one's want, not only has his own labor been unproductive, but he has diverted $1,000,000 worth of labor, materials, etc., to unproductive purposes, which but for him might have been productively employed by some one else.

13. **Universal scarcity of goods.** If the history of mankind were written in true perspective, it would consist largely of an appalling description of misery resulting from scarcity of goods. We find nowhere a record of any nation with goods enough to satisfy reasonably well the interests of most of the people. We find no trace of a nation in which all the people have been well fed, well clothed, and well housed, or in which more than a small percentage have been well educated, and thereby made capable of enjoying the pleasures of the cultured man. Except in a few favored nations, during the last hundred years ill health, starvation, exposure to the elements, and ignorance have been accepted more or less as a matter of course, as necessary evils from which for millions of human beings there was no

escape. Hundreds of millions have suffered from hunger, shivered with cold, lived in ignorance, rotted with disease, killed their fellows, been killed in turn, all for lack of goods enough to permit them to live healthy and happy lives.

Even to-day, when the optimist sometimes speaks of the economic millennium having arrived, the degree of scarcity and the depth of poverty are still deplorable. The actual situation can be presented more effectively by statistics than by rhetorical flourishes.

TABLE I. ESTIMATED NATIONAL INCOME OF THE UNITED STATES, 1909–1918*

YEAR	NATIONAL INCOME		PURCHASING POWER AT PRICE LEVEL OF 1913	
	Income in billion dollars	Per capita income in dollars	Income in billion dollars	Per capita income in dollars
1909.....	$28.8	$319	$30.1	$333
1910.....	31.4	340	32.2	349
1911.....	31.2	333	31.7	338
1912.....	33.0	346	33.2	348
1913.....	34.4	354	34.4	354
1914.....	33.2	335	33.0	333
1915.....	36.0	358	35.2	350
1916.....	45.4	446	40.7	400
1917.....	53.9	523	40.8	396
1918.....	61.0	586	38.8	372

* National Bureau of Economic Research, Inc., *Income in the United States*, vol. I, p. 76.

The statistics in Table I are taken from the report of the National Bureau of Economic Research on *Income in the United States*. Because of the ability of the economists and statisticians who collaborated on that report and the care with which they worked, these statistics of income are the most reliable figures available. The reader should note that the table is divided into two parts, the part at the left showing the actual national income of the United States for each year from 1909 to 1918 in billions of dollars and in dollars per capita, and the part at the right showing the total income and the income per capita reduced each year to the purchasing power at the price level of 1913. The great rise in total money income and in income per capita from 1909 to 1918, and more particularly the rapid

rise from 1915 to 1918, is misleading if one forgets to take into consideration the rise in prices that took place during this period. It appears, for instance, that total income rose from $28,800,000,000 in 1909 to $61,000,000,000 in 1918, or that total income more than doubled in nine years. Likewise per capita income rose from $319 to $586, not quite doubling.

But because prices were about 60 per cent higher in 1918 than in 1913, the total income of $61,000,000,000 would not buy more goods than $38,800,000,000 would have bought in 1913, and the per capita income of $586 in 1918 would buy no more than $372 in 1913. On the contrary, in 1909 prices were lower than in 1913, so that the income of $319 per capita of 1909 would have bought as many goods as an income of $333 in 1913. If one desires to compare the income of one year with incomes of other years, in order to note whether the power of the people to buy and enjoy goods is changing, it can be done better when the incomes are all reduced to dollars of equal purchasing power, as in the last two columns of our table. Income per capita is of more significance for such purposes than total income of the country, since the latter may increase while the former does not when population increases, and welfare depends upon the quantity of goods available per person rather than upon the total quantity available. For instance, 100 persons will be better off with 100 loaves of bread than 200 persons with 150 loaves.

We may note that in 1913, before our economic situation was disturbed by the Great War, our national income per capita was $354. If all persons had shared equally a family of five would have enjoyed an income of $1770. In 1918, still assuming that all persons shared equally in the national income, a family of five would have had a money income of five times $586, or $2930, or, in terms of 1913 dollars, five times $372, or $1860. The family income in dollars would have been much increased, but in its power to buy things that the family required the increase would have been slight. The best year for our average family in the whole decade would have been 1916, when it would have enjoyed an income of $2000 in terms of 1913 purchasing power.

Low as per capita income in the United States was at the outbreak of the Great War in 1914, it was higher than in any other country in the world. Whereas the per capita income in the United States in

1914 was $335, the per capita income in the United Kingdom, for example, was only $243; in Germany, $146; in France, $185; in Japan, $29.[1] It should be noted, however, that these great differences in money income were in part offset by lower price levels in the foreign countries named. Our table shows that during the war per capita income in the United States rose considerably even when reduced to terms of 1913 purchasing power. At the same time per capita income in terms of 1913 purchasing power fell in the various warring European countries, so that the difference between income in the United States and leading European countries became much more pronounced during the war than it was before the war, and it remains more pronounced at the present time (1926).

14. Unequal distribution of income. Since the statistics quoted in the foregoing section were compiled, productivity of industry in the United States and national income have increased considerably, and it is probable that per capita income in 1925 was approximately $750, or at the rate of $3750 for a family of five.[2] Now, if all persons in the United States shared equally in our national income, and if each could spend all his income freely without thought for the future, all could live in a fair degree of comfort. Luxuries would be few, economy would be necessary; but actual privation that would cost life, health, and happiness would be in large measure avoidable. But all persons do not share equally in the national income, and most persons dare not spend freely all their annual income, but must make provision for their future needs. Moreover, aside from each individual's own future needs, it is necessary that part of the national income be saved and invested if industry is to progress rather than stagnate. It is out of our national income and savings that we must provide new and improved means of transportation, additional factory buildings, and other capital equipment.

It is only when we note the actual distribution of income that we realize the extent to which the mass of the people in the United States, the most prosperous country in the world, suffers from an inadequate supply of goods. In 1913, before the price level was disturbed by the Great War, 96 per cent of all income receivers in the United States had incomes of less than $2000, and even in 1919, when the price level had been greatly raised by war conditions and

[1] *Income in the United States*, vol. I, p. 85.

[2] For basis of this figure see Chapter XL, Section 6.

the cost of living had bounded upward, 86 per cent of all income receivers had incomes below $2000 a year. Not only were most incomes below $2000 a year, but a large majority were far below that figure, as indicated by Table II.

TABLE II. THE AVERAGE ANNUAL EARNINGS OF EMPLOYEES NORMALLY ENGAGED IN VARIOUS INDUSTRIES *

	1910	1912	1914	1916	1918
All industries	$656	$692	$674	$831	$1078
Production of minerals	642	687	649	814	1283
Manufacturing					
Factories	620	655	616	873	1148
Hand trades	681	714	640	840	1194
Transportation	688	731	721	842	1286
Banking	797	887	921	1170	1461
Government	763	798	842	891	895
Agriculture	301	319	321	357	590

* Adapted from *Income in the United States*, vol. I, p. 102.

Observe that in Table II the annual earnings of employees in all industries in the United States averaged in each of the years 1910, 1912, and 1914, less than $700, and that they averaged only $1078 in the price-inflated year of 1918. Then consider that in many cases these earnings constituted the sole, or practically the sole, source of income for a father, mother, and several children. Make allowance for the fact that in the years 1910–14 a dollar would buy something more than once and a half as much as a dollar would buy in 1926, and that in 1918 prices were about as high as in 1926, and calculate roughly the probable cost of providing a small family with decent food, decent clothing, and decent shelter, together with proper medical and dental attention, educational facilities, a moderate amount of recreation, and various odds and ends which we commonly think of as constituting "the American standard of living." Only one conclusion is possible. Millions of our citizens, instead of enjoying incomes which permit them to live reasonably comfortable, healthy, and happy lives, must live in poverty, stunted mentally, morally, and physically by scarcity of goods.

The statistics in Table II show that average earnings do not vary much from industry to industry, with the notable exception of ag-

riculture, in which average earnings are less than half the average earnings for all industries. Aside from this great difference, which is in part offset by the lower cost of living in the country, the averages are notable for their uniformity rather than for their differences, and all are startlingly low. Were it not for the fact that some workers own their own homes and are thus freed from the necessity of paying rent, and that in many families there are two or more wage-earners, the economic condition of a large part of our working class would be intolerable.

As already indicated, incomes in the United States, as measured in purchasing power, have increased somewhat since the statistics in the foregoing tables were compiled, but not enough essentially to change the picture. In the most prosperous country in the world in its most prosperous quarter of a century, namely, the United States in 1900–25, a substantial percentage of the people have lived narrow, stunted, and more or less embittered lives for lack of goods. In other times and in other countries conditions have been worse. Throughout the ages poverty, like another Old Man of the Sea, has bowed the shoulders of mankind with its crushing weight.

15. Five fundamental reasons for scarcity of goods. The fundamental reasons for scarcity of goods, or poverty, are five in number:

(1) Goods provided free by nature, capable of affording direct satisfaction of wants without labor, are so limited in quantity, with a few exceptions, such as air and sunshine, and so restricted in variety, that they will support only a small number of human beings, and this small number only on a standard of living enjoyed by wild beasts.

(2) When men first learned to labor to produce consumers' goods they labored so ineffectively that they had but little for their trouble but their pains, and they have been slow to find and adopt improved methods of production.

(3) The actual working time of a human life is short, when one considers the unproductive years of childhood and of old age, the years cut short by sickness, accidents, and holidays, and the days cut short by sleep and recreation.

(4) The population of the earth has gradually increased, and this has increased the difficulties of providing an adequate supply of food, clothing, and shelter for all, since the natural resources of the world have remained the same, and the amount of fertile land per capita has grown less and less.

(5) Finally, human beings have spent a considerable part of the time that might have been devoted to production, in fighting one another, and in destroying one another's goods.

Of these five fundamental causes of scarcity, one can never be removed by anything that man can do, namely, the limited amount of free consumers' goods provided by nature. Three others are so closely related to fundamental physical and psychological human characteristics that they are likely to be modified only in the slow process of time and only in a moderate degree, namely, the limited number of hours of labor that can be performed in a lifetime, the persistent growth of population, and the propensity of human beings to engage in destructive wars. The one great hope of mankind for greater abundance of goods lies, therefore, in removing ineffectiveness of labor as a cause of scarcity, or, in other words, in improving methods of production. Let us consider these matters in more detail.

16. Man can expect no increase in the goods supplied by nature. Consumers' goods provided free by nature have always been so limited in quantity, with a few exceptions, such as air and sunshine, and so limited in variety, that if human beings tried to live wholly on the bounty of nature without engaging in productive labor, only a comparatively small number would manage to survive and these could not maintain a standard of living above the level of the lower forms of life. And in this respect conditions are not likely to improve. Nature will in all probability never supply more free consumers' goods than to-day. Not only can man not count upon being showered more abundantly with free consumers' goods by nature in the future than in the past, but also he can expect no increase in the natural resources of the earth which might tend to make his labor more productive. Our globe will remain substantially as it is, with its 197,000,000 square miles of land and sea. Any change produced thereon by nature is as likely to be a change for the worse as for the better. The icecaps at the poles may advance or recede. The heat from the sun may increase or diminish. Internal disturbances may change the earth's contour. Possibly these changes may make it easier for man to supply his wants. But certainly, if the human race is going to wait for things like these to better its condition, its economic position will remain as precarious as that of Micawber, who had similar ill-founded expectations.

17. Our earliest human ancestors lived largely on the bounty of nature, as wild animals do to-day. Our earliest human ancestors

lived largely on the bounty of nature rather than by the sweat of their faces. When they sweated at all, it was usually in play or in fighting over the limited quantity of the free gifts of nature. They lived as wild animals do to-day. Their food doubtless consisted of such delicacies as worms, bugs, nuts, and wild berries, and other plants and animals requiring no special preparation before being eaten. They lived in caves, under overhanging rocks, in tree-tops, or other natural shelters, and in climates where clothing was not required for protection from the elements, and under social conditions not requiring an elaborate wardrobe as a mark of respectability. When their numbers in any locality increased out of proportion to the quantity of free goods available, some migrated to other sections or they all fell to fighting over their inadequate supplies. If migration and fighting failed to reduce their number sufficiently, starvation and disease restored the equilibrium between food and men.

But the earliest men did not live wholly on the bounty of nature. They performed some productive labor, changing the form or location of things they found to make them more useful, or storing them up for future use, thus giving them time utility. Productive labor was not an invention of the human race, but of our pre-human ancestors or of some other animals. The first being that could properly be called a man was born into a world in which production was already being carried on in many ingenious ways. His ape-like ancestors, as well as many other animals, had not been living altogether on free goods provided by nature. We need only to look about us to-day to conclude that this is true. We can see for ourselves that many kinds of animals are engaged in labor to satisfy their wants. They work for a living as do human beings — changing materials of the earth in form, place, and time, to make them more useful.

18. Men have improved their methods of production; animals have not. Squirrels carry home nuts and store them for the winter, thus performing two of the fundamental processes of production, creating place and time utility. Birds build nests, thus changing the form of things to make them more useful. Even more ingenious are the operations of bees and ants. Bees gather raw materials from flowers, and manufacture and store honey for future use. Ants carry through similar projects, laboring with remarkable energy and precision of movement in providing for themselves food and shelter.

Some observers have even asserted that certain species of ants cultivate plants and domesticate other insects.

The mere fact that men early began to labor to produce goods to satisfy their wants did not distinguish them from lower animals, nor give promise of supremacy over the beasts of the earth. They had many rivals in the simple processes of production, some of which seemed much more clever than they. What has distinguished men from their rivals in production is that men have learned to improve their methods of production while the lower animals have not. Parenthetically we may remark that most men, like animals, would continue using the methods of their ancestors, and are prone to discourage and oppose any change, taking for their slogan, "What was good enough for father is good enough for me." It is the exceptional man who sees room for improvement and has the wits to find a better way.

19. The pressure of population. When men learned to improve their methods of production — finding new and better ways of changing materials provided by nature in form, place, and time, in order to make them more capable of satisfying human wants — the way was opened to an enormous increase in the quantity and variety of goods available for human consumption. More effective methods of production made possible the subsistence of larger numbers with a higher standard of living. Men moved from caves and tree-tops into tents and huts. The use of fuel and clothing permitted them to settle in colder climates and utilize a wider range of natural resources. The development of herds of cattle and sheep and the cultivation of crops increased enormously the quantity of food available. It must have seemed to the optimists of long ago that the world would soon be living in an era of peace and plenty. But the various improvements in methods of production which might rapidly have increased the quantity of goods available per person, and thus have raised the standard of living, tended constantly to be offset in whole or in part by the persistent increase in population.

There is a tendency for the human race to increase in numbers, and if this tendency is not repressed, population may double every twenty-five years, or even more rapidly. In other words, a nation of 1,000,000 persons may conceivably increase in numbers to 16,000,000 within a century, through natural increase alone. The

tendency to increase in numbers would involve no misery for the human race if it were not for the law of diminishing returns. Since the law or the economic principle of diminishing returns will be considered in detail in a later chapter, we may dismiss it here with a few words. The amount of good land in the world is limited, and naturally does not increase with the growth of population. Furthermore, the quantity of food or other products that can be produced on an acre of land is limited. True, to a certain extent, more labor applied to an acre of land — in growing wheat, for example — will increase the yield. But beyond a certain point any further increase in labor will yield less than proportional returns. In other words, one cannot indefinitely keep on doubling the output of a field by indefinitely keeping on doubling the number of laborers working on it.

The same principle applies whether the land is used to produce food, textiles, building materials, or what not. Once the best land is being utilized up to the point of diminishing returns to supply the wants of a growing population, the needs of additional persons can be provided for only by labor applied under less advantageous circumstances, either as extra labor applied somewhat less productively on the better land, or by labor applied to worse land yielding less per acre and less per day of labor. In the absence, then, of improvements in the methods of production the quantity of goods produced per hour of labor tends to decrease as population increases, and the total quantity of goods available for human consumption tends to increase less rapidly than population. Even when new inventions and processes bring about improvements in methods of production, population may grow so rapidly that the reduction in output resulting from the operation of the law of diminishing returns may more than offset the better method used.

When population increases people must either work harder, improve methods of production, or get along with fewer goods per person. Possibly they may do all three. Some writers with more sentimental optimism than logic have denied this, arguing that for every extra mouth to feed there comes into the world an extra pair of hands to help in providing the food supply, and that thus the good Creator has provided an exact balance between demand and supply. The trouble with this argument is obvious — the sources of supply of

our goods are two, labor and land, and the Creator has made no provision for an extra acre to be added to the surface of the earth for every additional mouth and pair of hands.

20. Limitation of the size of families. We have seen that an increase in population, methods of production remaining the same, tends to reduce the production of goods per capita, and thus to lower the standard of living. As the population of the earth increases, the fertile areas tend to become overcrowded and must be cultivated beyond the point of diminishing returns, and at the same time millions of persons are compelled to labor comparatively ineffectively in making a living in the more barren regions of the earth. Although one could not say truly now that the earth as a whole is already overcrowded, some parts of it apparently are, as, for instance, parts of India, China, and Europe. It is probable that one century of increase in the whole population of the earth at the maximum rate possible would overcrowd the earth to a degree bringing great misery to the mass of the people, even if great improvements in methods of production should accompany this increase in population. Finally, it is easy to demonstrate mathematically that even at a much lower rate of increase than the maximum possible, the human race would in the course of a few thousand years be so numerous that there would be standing room only on the earth. Eventually, of course, the growth in numbers must cease, and long before there is standing room only.

Unless human beings deliberately restrict the growth in numbers by limiting the number of children born per family, or per thousand of population, the increase in population will be checked by war, starvation, and disease. Many persons, therefore, urge that these horrors of war, starvation, and disease be prevented by a reduction in the birth-rate. But thus to check the growth of population in the world is a matter of extreme difficulty. There is a natural tendency for men and women to marry and to rear children, and apparently those who do so generally live happier lives than those who do not, even though they must share their material goods with their children. The happiness that comes from family life is not, however, dependent upon large families, and is probably in most cases greatly diminished when the number of children is excessive. Some restriction in the number of children below the eight, ten, or twelve

often found in a family is highly desirable, not only to prevent eventual overpopulation of the earth and misery for all, but to prevent the parents from becoming mere slaves for subsistence and the children from being stunted mentally and physically for lack of goods.

Up to the present time deliberate limitation of the number of children in a family has not been general, and in so far as it has been practiced, it has been confined largely to the upper-class families. Among the mass of the people large families have continued to be the rule, at least until quite recently. The French represent the outstanding exception to the rule of increasing population — their numbers have been more or less stationary for a generation. It is quite probable that limitation in the size of families will be more widely practiced in the near future than in the past, but to be effective in stopping the growth of population it must be so drastic that each person will on the average become the parent of but two children, and even then population would grow if the average life span were increased. Such widespread and drastic limitation is not likely to occur for many centuries. It runs contrary to fundamental human instincts, and therefore is not likely to be practiced by the mass of the people without encouragement from their leaders. But in many countries, far from being encouraged by the leaders, it is discouraged. Many religious teachers oppose it as being contrary to the Biblical injunction to man to increase and multiply and replenish the earth, and contrary also to passages in the New Testament. To refuse to bring children into the world, some men hold, is but a step removed from murdering them after they are born. How badly the world must be overcrowded, and how great the misery of the masses must become before it ceases to be sinful not to add to the overcrowding and misery, these men do not say. They might say that the question of overpopulation is not yet an acute one, and that time will bring its solution. Many political leaders oppose restriction of numbers in their own country as being politically inexpedient because it weakens the country in time of war, ignoring the fact that excessive growth of population within their own country is likely to involve it in war — either a war of aggression to obtain more land, or a war of defense against a coalition of weaker neighbors united to overthrow the growing giant menacing their future.

21. Statistics of population show that the increase continues. However desirable small families may be in the interest of their own members, and however necessary and obvious it is that eventually the growth in numbers must cease, the number of people in most countries, and on the earth as a whole, is increasing and will doubtless continue to increase for an indefinite time. The population of the earth has been estimated at 640,000,000 in 1800; 1,075,000,000 in 1850; 1,543,000,000 in 1900; and at upward of 1,750,000,000 in 1925. As for the United States, where population has grown through immigration as well as through natural increase, the increase in numbers has been from 5,300,000 in 1800 to approximately 115,000,000 in 1925. The population of Europe has been estimated at 175,000,000 in 1800, and at 452,000,000 in 1914, at the outbreak of the war. The Great War merely checked the increase in numbers in Europe, and in 1925 the population of that continent has been estimated at 475,000,000.

The rate of increase in population, except as it is affected by emigration or immigration, is measured by the excess of the birth-rate over the death-rate. These rates are expressed as a certain number per thousand of population per year. For example, the birth-rate in Massachusetts for the five years ending 1905 was 24.2 per 1000, and the death-rate, 16.4, an excess of births over deaths of 7.8 per 1000. A birth-rate of 45 per 1000 represents a conservative estimate of the maximum birth-rate possible in a normal population, and a conservative estimate of the minimum death-rate in a normal population, where all preventable causes of death are done away with, is 15 per 1000. By a normal population is meant one composed of normal human beings and not subjected to increase or decrease in numbers by immigration or emigration. The difference between this maximum birth-rate and minimum death-rate represents the maximum rate of increase, 30 per 1000 per year. At this rate population would double in twenty-three years, just as money, if put out at compound interest at three per cent, would double in twenty-three years. This rate of increase has not often been reached. But an excess of births over deaths of even 10 or 12 per 1000 may within a short time bring an already thickly populated country, as Japan or Italy, face to face with the difficult problem of overpopulation, and will inevitably bring the world as a whole face to face with the same

problem. Japan and Italy may solve this problem by emigration; but the world as a whole must find some other solution, in all probability.

During recent decades the birth-rate has fallen in most countries, mainly because of late marriages and deliberate limitation of the size of families among the well-to-do, or among the more ambitious members of the poorer classes, but this decrease in the birth-rate has in large measure been offset by a decline in the death-rate resulting from a more effective war against disease. In this connection the statistics shown in Table III may be of interest.

TABLE III. BIRTH- AND DEATH-RATES IN SELECTED COUNTRIES *

COUNTRY	AVERAGES FOR FIVE-YEAR PERIODS					
	1881–85	1886–90	1891–95	1896–00	1901–05	1906–10
BIRTH-RATES						
England and Wales....	33.5	31.4	30.5	29.3	28.1	26.3
France.....	22.7	23.1	22.3	21.9	21.2	19.9
Germany.....	37.0	36.5	36.3	36.0	34.3	32.7
Hungary.....	44.6	43.7	41.7	39.4	37.2	37.0
DEATH RATES						
England and Wales....	19.4	18.9	18.7	17.7	16.0	14.7
France.....	22.2	22.0	22.3	20.7	19.6	19.2
Germany.....	25.3	24.4	23.3	21.2	19.9	17.5
Hungary.....	33.1	32.1	31.8	27.9	26.2	25.0
RATES OF INCREASE — EXCESS OF BIRTHS OVER DEATHS						
England and Wales....	14.1	12.5	11.8	11.6	12.1	11.6
France.....	2.5	1.1	0.0	1.2	1.6	0.7
Germany.....	11.7	12.1	13.0	14.8	14.4	15.2
Hungary.....	11.5	11.6	9.9	11.5	11.0	12.0

* Adapted by permission from *Vital Statistics* (p. 210), by G. C. Whipple, published by John Wiley & Sons, Inc.

In each of the four countries included in the table the birth-rate fell rather persistently and considerably from 1881–85 to 1906–10. But the death-rate also fell. In England and Wales and in France

the birth-rate fell more rapidly than the death-rate, so that the rate of increase per thousand of population diminished. But in Germany and Hungary the birth-rate fell less rapidly than the death-rate, so that the rate of increase per thousand of population grew greater. In all four of these countries except France the rate of increase during the whole period was great enough to indicate serious overcrowding of population in the not remote future.

Statistics for other countries would show similar results — a declining birth-rate, but a death-rate declining also, a continuing excess of births over deaths, and a consequent increase in population. There is no good reason for assuming that in the calculable future the growth in population will cease except possibly in a few countries. In fact, if the methods of disease prevention and cure now known to medical science are universally applied and present efforts to find a means of preventing great wars in the future are successful, these two developments may more than offset the artificial check to the increase in numbers resulting from conscious limitation of the size of families, so that in the twentieth century the population of the world may increase even more rapidly than in the nineteenth century, when according to the best estimates available it more than doubled.

Germany and England have found a partial solution of their population problem in importing from less thickly populated countries food and other raw materials — thus indirectly utilizing the land of other countries. Italy and some other thickly populated countries have found relief from the pressure of population on natural resources by emigration. More than 3,000,000 Italians entered the United States alone during the years 1900–14.

But what, one may well ask, will happen if the world as a whole becomes as badly overpopulated as Italy, England, and Germany? War? Starvation? Disease? What?

22. When labor is ineffective, goods are scarce. When it takes much labor to produce few goods, then goods are bound to be scarce, and misery prevails, for labor is irksome and few men will labor long hours except under stress. To many persons, poverty and misery resulting from lack of goods are more endurable than the discomforts and pains of long-continued labor. Even the most industrious man can produce but few goods in a lifetime if his labor is ineffectively applied, as it is when he works in more or less primitive

fashion on poor land or on a very limited area of good land, and that is the way most men have labored during the greater part of the history of the human race. As already indicated, man's working life is short. If he is lucky he lives threescore years and ten. He can labor only a fraction of that time. His first twenty years are not highly productive because of his immaturity; nor are his last ten years, because of the infirmities of advancing age. His working days per year, cut down by vacations, holidays, sickness, and accidents, are not likely to exceed three fourths of the year's three hundred and sixty-five, and his working hours per day are not likely to run above a third of the twenty-four. His actual effective working time is, therefore, only about one third of three fourths of four sevenths of seventy years, or ten years. While we commonly think of an industrious man as working six days and resting on the seventh, we should note that in a lifetime he works ten years, and sleeps, rests, eats, plays, or is sick, the other sixty. If, because of scarcity of goods, ill temper, love of excitement, or other reasons, men fall to fighting, their working life is cut shorter still. Not only is the time that is spent in fighting lost to productive labor, but many are killed in youth, at the threshold of their most productive years. Furthermore, many others are wounded and possibly disabled for life, and thus do not merely pass from the ranks of productive laborers, but become a burden on their fellows.

Universal peace, progress in medical science, and the prevention of preventable diseases and accidents may materially lengthen the average life span, and increase the proportion of the average man's life which he may devote to productive labor, and thus increase substantially the amount of labor performed in an average lifetime and increase the production of goods per capita, even though methods of production do not change. But these very gains would tend to be offset by the fact that in the absence of a reduction in the birth-rate they would be accompanied by a more rapid growth in population; war and preventable disease and accidents representing substantial checks on increase in numbers. Only limitation in the size of families more drastic than we have good reason to expect for many generations will prevent the lower death-rate from so increasing the rate of increase in population that the increased work span will not be offset by the operation of the law of diminishing returns as the

growing population presses constantly more heavily upon the limited natural resources of the world.

Moreover, to prolong a man's life means also to increase his need for goods, and to lengthen one's life, merely to permit one to work longer to produce the greater quantity of goods a longer life requires, offers not an entirely pleasing prospect. A much more pleasing prospect would be the possibility of a longer life and fewer hours of labor and more leisure for enjoyment. Under the stress of circumstances many men — perhaps most men — are already laboring such a large part of their lifetime that they would find additional goods produced at the expense of longer hours of labor too dearly bought. We must bear in mind that many kinds of goods require time not only to produce, but also to consume and enjoy. It is futile to have food and no time to eat and digest it; playthings, and no time to play; a downy bed, and no time to lie in it; books, and no time to read.

23. Human happiness dependent upon abundance of material goods. We have seen that free gifts of nature are not likely to be showered more abundantly upon the human race in the future than in the past; that the pressure of population on limited natural resources is likely to continue; that longer work spans resulting from lengthening the average lifetime may bring no substantial net gain in enjoyment. We may add that wars are likely to break out intermittently in the future as in the past, and that they may grow more rather than less destructive. Is there, then, any possibility that mankind may escape from that intolerable evil, scarcity of goods, and from the misery of poverty? The answer to this question we have already indicated. Abundance of material goods can be had only by improving methods of production, and thus increasing the effectiveness of labor so rapidly and persistently that production of goods per hour of labor increases despite the operation of the law of diminishing returns which accompanies the growth in population.

All honor should, therefore, be accorded those individuals who in various ages have through their inventions made labor more productive. They have been real benefactors of the human race, and their contribution to human welfare has transcended that of many men whose names have been held to be more illustrious than those of the inventors. There are hosts of generals, statesmen, politicians,

and others whose deeds are recorded in history with whom the world could have dispensed more easily than with the unknown men who devised the wheel, the wagon, the plow, and other great inventions. Men who devise improvements in methods of production are among the greatest benefactors of their race because they contribute to that abundance of material goods without which happiness for the mass of human beings is impossible.

There are some persons of a puritanical cast who would argue that men should not strive to enjoy life and be happy during their terrestrial existence, holding that such happiness is sinful, and that the true aim of mankind should be to suffer evils and mortify the flesh, thus purifying the soul for its lofty flight into celestial regions. There are others, it seems, who, although not frowning upon mortals for enjoying happiness here below, are inclined to imply that happiness is to be found in poverty rather than in abundance, and that wealth corrupts and breeds decay and consequent misery. The writer would take issue with both these points of view. Happiness is the highest aim of mankind and is blighted and not nourished by poverty. It is here maintained that human beings are not necessarily more sinful in striving for enjoyment and happiness here and now than the puritan is in striving for enjoyment and happiness for himself in a world to come. It is maintained, furthermore, that the highest degree of happiness for human beings comes with the highest degree of physical, mental, and moral perfection. But a high degree of physical, mental, and moral development, and therefore of happiness, is dependent upon an abundant supply of material goods. In all history no one thing has so stunted human beings — physically, mentally, and morally — as an insufficient supply of goods to satisfy the interests of health, knowledge, art, justice, and sociability. At the present time nothing will so increase the possibility of happiness for hundreds of millions of human beings as an increase in the supply of goods. It is true that wealth may be abused. The rich may live in idleness and sloth, while the poor are spurred on by necessity to ennobling endeavor. But use and abuse are not synonymous, and for every rich man who has been hurt by wealth, there have been millions of poor men stunted in their development by the lack of it. Material goods and the higher things of life — art, justice, and morality — are not antithetical, any more than the earth and the flowers

that it nurtures. The economist believes that men can create art, achieve justice, and live morally more easily in abundance than in poverty — that the finer things of life are not flowers that grow best in sterile soil.

EXERCISES

1. Make a complete list of free consumers' goods found in your locality. Name some additional consumers' goods which are free in other sections of the United States. Why are goods which are free in one section of the country not always free in other sections?
2. What are the fundamental causes of scarcity of goods? Which, if any, of these causes will continue to operate indefinitely? Why?
3. Is a cigar dealer a productive laborer? Is a bootlegger? A superintendent of an asylum for homeless cats? A newspaper reporter? A bandit? A gambler? Why or why not?
4. Suppose that five manufacturers of shaving cream advertise extensively in the *Saturday Evening Post*, each striving to persuade consumers that his product is superior to all other shaving creams. Suppose their products are, so far as consumers can determine, of equal excellence. Is the labor devoted to this advertising productive labor? Why or why not?
5. If the population of the earth should double each century, what would be the total population at the end of five centuries? Approximately how much fertile land would there be per capita?
6. Find the latest authoritative estimate of the total income of the people of the United States. If this income were equally divided among all the people, would they all be able to live in comfort?
7. Does an unskilled laborer in your community earn enough to support a family of five in comfort? Make out a statement of his probable earnings per year, and itemize his probable expenditures.

REFERENCES

NOTE: The references for collateral reading appended to this and the following chapters are not intended to represent a complete bibliography, but are merely suggestions for further reading in a few good books which for the most part will be found even in the libraries of small colleges, or because of their small number may readily be obtained. The references at the end of each chapter are set down alphabetically in two groups. Group one consists of specific chapters or sections of books of such reasonable length that one or more of the selections may easily be read in connection with each chapter of the text by students taking a full-year course in principles of economics. Group two consists of books devoted wholly or largely to the discussion of the subject of the chapter to which it is appended. Students should at least look over one or more of these books and gain some idea of the nature of their contents, and thus obtain some notion of the breadth and depth of the subject of economics.

1

Fairchild, F. R., Furniss, E. S., and Buck, N. S. *Elementary Economics*, chapters 41 and 42.

Hamilton, W. H. *Current Economic Problems*, sections 215–22, 1925 edition.

Marshall, L. C., Wright, C. H., and Field, J. A. *Materials for the Study of Elementary Economics*, sections 1–3.

Taussig, F. W. *Principles of Economics* (1921 edition), chapters 1 and 2.

II

Bureau of Applied Economics. *Standards of Living.*
East, E. M. *Mankind at the Crossroads.*
King, W. I. *The Wealth and Income of the People of the United States.*
National Bureau of Economic Research. *Income in the United States.*
Reuter, E. B. *Population Problems.*
Rowntree, B. S. *Poverty: A Study of Town Life.*

CHAPTER II

IMPROVING METHODS OF PRODUCTION

1. The use of capital, or the roundabout method of production. Perhaps man's greatest single improvement in methods of production was the introduction of the use of capital. Capital, as most economists use the term, consists of goods made by man, not for direct satisfaction of wants, but for use in making consumers' goods. Capital may, therefore, be called man-made producers' goods, to distinguish it from land used in production, which is also producers' goods, but not man-made. The advantage gained from the use of capital in production lies in this: a given amount of labor expended in making the capital goods plus the labor expended in using them to produce consumers' goods will yield a greater return than the same amount of labor expended directly in the production of consumers' goods. In other words, the roundabout method of production is more effective than the direct method.

A very good illustration of this, and one often used, is that of the primitive fisherman. He found that, by first producing a hook and line and procuring bait and using these as an aid in catching fish, he could catch and enjoy more fish than if he spent the same amount of time in catching fish with his bare hands or killing them with a convenient stick or stone. From some such simple beginning the use of capital has spread throughout the world and has so increased in importance in the leading countries that their form of economic organization is often called the capitalistic system. Capital to-day consists of such things as tools, machinery, factory, and other business buildings, raw materials used in manufacturing, stocks of goods in stores and warehouses, railroads, improved highways, and motor trucks. It consists, in short, of all things made by man to be used as an aid in further production. It should be emphasized, perhaps, that capital includes not only such things as the leather and machinery of the shoe manufacturer, from and by means of which he makes shoes, but also such things as the shoes on the shelf of the shoe retailer, who by giving these shoes time and place utility merely

carries the work of production begun by the manufacturer to its ultimate conclusion.

2. **Accumulation and maintenance of capital.** The accumulation of capital is a slow and painful process, and both its accumulation and its maintenance after being accumulated require sacrifice and self-denial. Let us revert to the illustration of the primitive fisherman, who, we assumed, accumulated some capital in the form of a hook and line. Assume that the fisherman worked ten hours a day to supply himself with the necessaries of life, including five hours a day to supply himself with food, or fish. Assume that in those five hours he caught five fish, all of which he ate with relish from day to day. Suppose now he got the idea of the hook and line which would permit him to fish more effectively, catching perhaps ten fish in five hours; but suppose that to make the hook and line required, in the ineffective way he could labor, without tools, fifty hours of labor. To carry out his project he either had to work more hours per day than before while making the fishing tackle or to cut down on his consumption of fish and other goods, so that he could work part of his ten hours on the hook and line. In either case sacrifice was involved. Conceivably he might have saved, during the course of a few weeks, enough of the various necessaries of life out of his daily output to live on while he made the hook and line during five days of uninterrupted labor. In any event, we may say that to equip himself with capital the fisherman either had to refrain for a while from consuming all he produced or to produce more than he consumed.

Accumulating his capital required sacrifice. Maintaining it also required sacrifice, or self-denial. Having his hook and line he might now fish more effectively and catch ten fish during his five hours, or catch the same number of fish in half as many hours. Suppose he worked as hard as before, but ate all the fish he caught, or traded them for other consumers' goods. Eventually his hook and line would wear out, and he would be as poor as before. To maintain his capital he would have to refrain from consuming all his fish, saving part of them toward the day when he would need them to live while making a new hook and line. He might also have dissipated his capital by cutting down his hours of labor instead of increasing his consumption. In short, to maintain capital as well as

to accumulate it requires that part of the total labor time be devoted to the production of capital and that less than the total product of industry be consumed from day to day.

It should be noted, however, that to maintain capital is easier than to accumulate it in the first place, because, once the worker has the capital to operate with, his output is greater and it involves less sacrifice to set aside enough of the daily output to replace the capital when it is worn out than the sacrifice involved in the original saving. Furthermore, an additional unit of capital is more easily saved than the first unit, because saving out of a larger income involves less sacrifice than saving out of a small one. Still, it remains true that even to-day, when enormous accumulations of capital exist in advanced industrial countries, maintenance of existing capital and accumulation of additional capital involve some sacrifice. Just as the primitive fisherman of our illustration had to refrain from consuming all he produced to accumulate and maintain his capital, so the people as a whole in such a country as the United States to-day must refrain from consuming all they produce if they are to accumulate more capital or even maintain what they have. In other words, as industry is now organized, people must spend for consumers' goods less than they earn, and invest part of their income in productive enterprise. The business man does this when he uses part of his profits to expand his business — increasing the size of his factory or store building, buying more raw materials and machinery, and the like. The salaried man or the wage-earner does this when he puts part of his money income in the savings bank or buys stocks and bonds with it, since, when he does this, his savings directly or indirectly find their way into the hands of business men to be used for business purposes.

As our discussion proceeds in later pages we shall see more clearly the importance of capital and how those who save and invest contribute to the welfare of others as well as to their own. We shall see for one thing that most of the great inventions and devices that have made labor more productive and have raised the standard of living of the masses have represented merely methods of using capital to better advantage and have been made possible only by the accumulation and maintenance of capital. Before passing on to consider some of the various methods of using capital let us note

more carefully the respective differences between capital and land, capital and money, and consumers' goods and producers' goods.

3. Distinction between capital and land, and capital and money. Capital, it has been stated, is man-made producers' goods. It comes into existence only when men produce more than they consume, or, as economic life is organized to-day, when men spend for consumers' goods less than they earn, and invest their surplus. It can be increased practically indefinitely, provided only human beings are willing to make the temporary sacrifice of not consuming all they produce from day to day. Nearly all the capital accumulated through the ages — buildings, stores of goods, machinery, railroads, ships, might be dissipated within a single generation through destructive wars, spendthrift habits, or sheer laziness of the people.

Land, or natural resources — the terms are used interchangeably by economists — remain relatively constant in quantity. Man cannot add to the natural resources or land of the world, although he may exhaust some classes of natural resources. We sometimes speak of "making" land, as when a swamp is drained, or a water-covered flat is filled in with refuse in a city and converted into building sites. But such changes in land are covered by our definition of capital. They are man-made producers' goods in the form of improvements on land. For all practical purposes man destroys natural resources or land when he exhausts deposits of coal, oil, gas, and metal ores, or when, by careless methods of farming, he permits erosion of the soil until only the bare rocks remain. But such destructive changes as man may work upon natural resources are not likely to represent a relatively important change in the total in any one century. And in one very important respect man can neither increase nor decrease natural resources, or land, namely, in respect to total area, it being understood that the economist's term land includes both land and sea. We may say, then, that, with such qualifications as noted here, land remains the same, while capital and population may change, and have, in fact, increased many fold in recent centuries.

Capital consists of all man-made producers' goods. Metals coined and used as money may properly be considered man-made producers' goods, or capital. But paper money, as will be ex-

plained more fully later, represents merely promises to pay — usually promises to pay in gold — and cannot properly be considered capital, any more than a deed to a house may be considered a house. In short, we may say that not all capital is money, nor is all money capital. But, as will be explained more fully later on, there is a tendency to confuse money with capital, which sometimes brings disastrous consequences. Since people have grown used to buying anything they want with money, when they have it, they sometimes conclude that if there were more money they could buy more goods, either capital goods or consumers' goods. Since paper money has been widely used as a substitute for gold and silver money in practically all countries, and since it can be very readily increased in quantity if the people insist by merely operating government printing presses more freely, the policy has at times been adopted of printing great quantities of paper money as an expedient for providing the people with more goods. As we shall see in later chapters this merely tends to raise prices, and does not increase the quantity of either producers' goods or consumers' goods available, but, on the contrary, by its disturbing effects upon the whole economic system actually brings a diminution in the quantity of useful goods.

It should be noted, perhaps, that business men commonly use the term capital to indicate the value of the property they use in their business. They may say, for instance, that Mr. Smith's capital is $100,000. They do not mean that he has that many actual dollars in money, but that he has property employed in business that would sell for $100,000. They would include as part of his capital any land that he uses for business purposes, as his factory site. This use of the term capital is not incorrect, and is found in books on business finance and other similar topics written by economists and others. But the student should note that in books on principles of economics, such as this, most economists mean by capital man-made producers' goods, and do not include land as capital, for reasons already stated in this section. This distinction between land and capital will be maintained in this book; and in later chapters, particularly in the chapters dealing with cost and price in agriculture, the student will see more plainly why it is desirable to make the distinction in books on economic theory.

4. Distinction between producers' goods and consumers' goods

based on the use to which they are put. The distinction between producers' goods and consumers' goods is not always clear to students. This is largely because the student is looking for a clear-cut difference in the nature of the two classes of goods, when, as a matter of fact, the fundamental distinction is the use to which the good is put. A thing that is used to give pleasure, to gratify, to satisfy a want directly, is a consumers' good. If the same thing can be used to aid in producing another good, and is so used, it is a producers' good. For instance, the hook and line of our primitive fisherman were used as examples of producers' goods. We tacitly assumed that what the fisherman wanted was not the pleasure of fishing, but the pleasure of eating the fish he caught. If, however, he had been fishing for fun and not primarily for the fish he caught, the hook and line would have been consumers' goods. Many similar examples could be given. A ton of coal burned in an engine in a factory is a producers' good. If the same ton were burned in a man's house to keep him warm it would be a consumers' good. A large variety of goods may be used either for direct satisfaction of want or to produce other goods — a larger proportion of all goods than one might suppose. A grocer, for example, might eat any one of a hundred articles on his shelves, and thus, by the use to which he put it, class it with consumers' goods. But if he keeps these articles for sale, they are producers' goods. By keeping them in stock he is adding time utility to them — making them available at the time his customers desire them.

On the other hand, some goods are by their very nature available for use only as producers' goods, as a plow, or a nail-making machine, while others can hardly be used except as consumers' goods, as the clothes a man wears, or the food already placed on his table.

5. The division of labor and its advantages. Ranking in importance with the use of capital as a means of increasing the effectiveness of labor is the division of labor. When men first began to labor to produce things they wanted, it was natural for each to work for himself, producing everything he could that he wanted, or for the family or household to produce everything for itself that it could, each member doing the tasks for which he or she was best fitted. Because of some natural aptitude or special knack, however, or because of the possession of special natural resources, or through

some lucky discovery, certain individuals or families were able to produce some goods with greater ease and of better quality than other individuals or families, and in some cases goods which others could not produce at all. Some had advantages in producing some goods, others in producing others. When this state of affairs became generally known, it was natural for trade to develop. Men began to swap with their neighbors. Each would trade something that he could make easily and well for something he wanted that he could make only with difficulty or not at all. Thus the quantity and variety of goods which members of a community could produce with a given amount of labor were increased. The advantage gained was so obvious that it was only natural for some individuals to specialize on one or two things which they could make most easily, and trade their surplus of these things for all other goods that they wanted. By so doing they gained still further advantages in addition to those already mentioned. The advantages of the division of labor, or specialization at a single task, may be illustrated by the example of the shoemaker:

(1) He found that he had a special aptitude for making shoes — he could make shoes more easily and rapidly than anything else.
(2) He found that by specializing in making shoes he gained in dexterity — that is, he could make shoes with greater ease and rapidity, and better shoes, by working always at this one task.
(3) He found that he no longer wasted time in trying to decide what to make next, or in hunting for the various tools required for various tasks, or in moving about from one task to the next.
(4) Finally, he found that as a specialized shoemaker he did not require so many tools as a jack-of-all-trades, and since he needed only a few, he could afford to own the best available.

Working with these great advantages, the shoemaker was able to make so many shoes of high quality in such a short time that he soon had more goods, received in exchange for shoes, and more leisure than he could otherwise have enjoyed. Other specialists, such as the blacksmith, the tailor, the weaver, likewise benefited from the division of labor, and so a large proportion of the workers quite early in history devoted themselves to a single trade. That these advantages were realized thousands of years ago is shown by the fact that Plato, who died in 347 B.C., discusses them in his *Republic:*

"Well," he asks, "when is a man likely to succeed best? When he divides his exertions among many trades, or when he devotes himself exclusively to one?"

After some further discussion he says:

"From these considerations it follows that all things will be produced in superior quantity and quality, and with greater ease, when each man works at a single occupation, in accordance with his natural gifts, and at the right moment, without meddling with anything else."

6. Natural forces and chemical processes. Man has greatly increased the effectiveness of his labor by the use of natural forces and chemical processes to aid him in production. Very early in history he doubtless learned to use the force of gravity in moving things from a higher to a lower level, as in rolling logs downhill and making deadfalls for animals he wanted to kill for use. He used natural forces when he floated down a river on a raft, or sailed on the sea, and he used the chemistry of nature in growing his crops. But it is only comparatively recently that he learned to use the expansive power of steam in the steam engine, the explosive power of gas in the gas engine, the force of powder and dynamite in mining and excavating, and the peculiar powers of electricity. Only recently, too, has he systematically developed chemical processes which have not only increased the effectiveness of labor, but have added greatly to the variety of products available for human consumption; as, for instance, coal-tar dyes, artificial silk, or rayon, and other products of chemistry laboratories.

7. Economic evolution. A study of economic history shows a persistent improvement in the methods of production — more and more effective ways of moving things about, changing them in form, and making them available at the right time, in order to increase their capacity to satisfy human wants. This persistent improvement in the art of production may be referred to as economic evolution, and is based almost wholly upon an increasing use of capital in more diverse forms, an increasingly elaborate division of labor, and a more and more extensive application of natural forces and chemical processes. Economic evolution has not proceeded at an equal pace at all times nor in all countries. At times progress has been slow and halting, and during periods accompanying or following great wars or calamities retrogression has sometimes

temporarily taken place. At other times progress has been extremely rapid as a result of a series of great inventions or discoveries. New and improved methods appear in some countries generations or even centuries before they are adopted in others, and in certain backward regions of the world methods of production are still being used that would have been considered antiquated in others thousands of years ago. Although wars and other calamities may temporarily halt economic progress, and although some races have been notoriously slow in adopting or devising new inventions, improvements in methods of production have rarely been lost altogether, or relinquished until superseded by still more effective methods, and inventions and discoveries applied in one country normally in the course of time are adopted in others. As a whole, and in the long run, the world advances.

8. Stages of economic evolution. Writers on economic history often describe economic evolution as consisting of a number of stages, as, for example, the five following stages:

(1) The hunting and fishing stage.
(2) The pastoral stage.
(3) The agricultural stage.
(4) The handicraft stage.
(5) The industrial stage.

It is sometimes implied that if one traced through the economic history of any advanced industrial country one would find that the people had advanced successively through the first four stages named above and are now living in the fifth. In other words, it is implied that they lived by hunting and fishing in primitive times; then advanced to the pastoral stage — of living by domesticating animals, and keeping flocks and herds, presumably on natural ranges or pasture lands; then turned to agriculture as a means of gaining greater abundance of goods more easily; then developed manufacture by hand, or the handicraft system; and finally entered the industrial stage, which implies primarily manufacturing in factories with the aid of machinery and mechanical power. It is implied also that each of these successive stages of economic evolution represents a more effective method of production than the preceding stage and makes possible a higher standard of living even in the face of a growing population pressing more and more heavily upon limited

natural resources. Now all this is not quite true, although such an enumeration of stages as just given does indicate in a general way the nature of industrial evolution. Let us consider the matter further.

It is doubtless true that in the early history of the human race hunting and fishing were the dominant industrial pursuits, and it is probable that in some parts of the earth the hunting and fishing stage was followed by the various stages of economic evolution in which keeping of flocks and herds on natural pasture lands, tilling the soil, manufacturing by hand, and manufacturing by the aid of machinery and mechanical power became successively the dominant method of gaining a living. But it is probable that some manufacturing was carried on before animals were domesticated or land was cultivated, as, for example, the making of bows and arrows, hooks and lines, and other hunting and fishing equipment. Furthermore, it is not certain that the pastoral stage preceded the agricultural stage in all parts of the earth. The reverse was probably true in some localities. Finally, it should be noted that the older methods of production have not been given up entirely as new methods have been developed. In some countries hunting and fishing, keeping of flocks and herds on natural pasture lands, agriculture, manufacture by hand, and manufacture by machinery are all being carried on simultaneously, each of these methods of production, or gaining a living, being followed by part of the people. Certain individuals may take a part in several of these methods of production, as, for instance, the farmer, who grows crops on his better land, grazes cattle and sheep on his hilly or stony land, hunts and fishes in slack seasons, manufactures by hand various household or barnyard contrivances, and occasionally works in a neighboring factory.

It should be understood, then, that by the transition of a people from the hunting and fishing stage to the pastoral stage is not meant a universal shifting from the one method of gaining a living to the other, but merely a switching over of a substantial proportion of the people from the less effective stage of hunting and fishing to the more effective stage of keeping flocks and herds, and so for the transition from any one stage to the next stage. While it would be possible for people to give up hunting and fishing altogether, and

while these industries have become of small relative importance in most countries of the world, it is obvious that agriculture must always remain one of our most important industries, so that we can never get away from the agricultural stage absolutely. It is probable, too, that there will always be some manufacture by hand, and some keeping of cattle and sheep on natural pasture lands. At present there is no country living absolutely in the industrial stage, although in some countries, such as England, Germany, and Belgium, manufacturing by machinery and mechanical power in factories has become the dominant occupation of the people. It is quite proper to speak of such advanced countries as being in the industrial stage even though many of their people are still engaged in tilling the soil and in manufacturing by hand.

9. Capital and economic evolution. Industrial evolution has been based in large measure upon the use of greater quantities of capital in more diverse forms. Men in the hunting and fishing stage used but little capital. They did little productive labor except that involved in catching fish and game for food, manufacturing a few simple articles of clothing or adornment, making natural shelters in rocks or treetops more habitable, or possibly making tents and constructing huts. Their capital consisted primarily of the simple tools or implements required for these occupations, such as bows and arrows, stone hammers, axes, and knives, and the like.

When more or less by chance men discovered that animals, as cattle, sheep, and goats, could be domesticated, and that labor applied to herding them, protecting them and their young from wild animals, and feeding them during the cold months of the year, would yield a greater return per day in meat, milk, butter, cheese, hides, skins, wool, and other animal products, than labor applied to hunting and fishing, then capital became of much greater importance than before. These herds and flocks maintained for the production of various animal products were capital, or producers' goods used in the production of consumers' goods, and not for the direct satisfaction of wants. An animal becomes consumers' goods only when it is prepared for consumption. A thousand persons gaining their living primarily by keeping cattle and sheep would require many times as much capital as would that many persons living by hunting and fishing.

Likewise, when men began to cultivate the soil they required the use of greater quantities and more diverse forms of capital than before. True, such simple agricultural methods as those employed by the North American Indians before the coming of the Europeans required but little capital — a stone axe to girdle and deaden the trees that encumbered the land; a crooked stick to stir the earth after the dead trees were burned; a few grains of corn to plant in the virgin soil, and possibly a dead fish dropped in with the seed to fertilize the soil — such was the Indian's capital employed in agriculture. With such primitive methods, however, agriculture could not be made highly productive, but remained merely a supplement to hunting and fishing. To increase output per acre enough to support such a dense population as lives to-day in western Europe much more elaborate capital equipment has been necessary. A variety of grains, grasses, fiber plants, vegetables, and root crops have had to be tried out and adapted to the various kinds of soil in the various kinds of climates. Rotation of crops has had to be practiced to bring the best results. A variety of tools and implements have had to be devised to prepare the different kinds of soil for the great diversity of crops and to harvest the crops. Barns, granaries, and other storehouses have had to be built in which to store the products of the soil pending sale or consumption. The enumeration need not be carried further. It is evident that to be most effective agriculture requires the use of much capital. The history of agriculture consists largely of an enumeration and description of new and more productive crops introduced and adapted to the soil and climate, new and improved methods of cultivating and fertilizing the soil, improved and elaborated farm equipment of all kinds, all these things involving the use of a greater quantity of capital per agricultural worker, and making possible a larger output per day of labor and per acre of land. The growing use of capital and the consequent increase in the effectiveness of a day of labor in agriculture is symbolized by the evolution in plowing from the laborious stirring of a few square yards of soil with a crooked stick to plowing twenty acres a day with ease with a gasoline tractor and a gang plow.

In manufacture and transportation the use of capital and the results on the productivity of labor have been even more spectacular

than in agriculture, particularly since about the year 1760, which marked the beginning of the Industrial Revolution in England.

10. **The Industrial Revolution.** The term "Industrial Revolution" is fittingly applied to the revolutionary changes in methods of production and in business organization when through a series of great inventions machinery and mechanical power came rather suddenly and extensively into use in manufacture and transportation. The Industrial Revolution took place first in England, where most of the great inventions were made, but the improved methods of production were in a few decades adopted in other countries of western Europe and in newer countries like the United States. More recently they have been applied in Japan and other Asiatic countries, and they are gradually spreading over all parts of the world.

We cannot here enumerate all the great inventions of the Industrial Revolution, but among those most commonly mentioned are the following:

(1) The flying shuttle, the spinning jenny, the water frame, the spinning mule, the power loom, and the cotton gin, all directly concerned with the production of textiles.
(2) The steam engine, the locomotive, and the steamboat, concerned with the application of mechanical power to manufacture and transportation.
(3) The substitution of coke and coal for charcoal in smelting iron ore, the puddling process in converting pig-iron into malleable iron, and the substitution of rollers for hammers in working malleable iron.

Although the date of the Industrial Revolution in England is sometimes arbitrarily placed as from 1760 to 1840, no one year can be said to have definitely marked either the beginning or end of the movement. All of the inventions named above, except the flying shuttle and the use of coal and coke in smelting iron ore, were made and applied between the years 1764 and 1825, or within the space of sixty-one years. But the year 1825 marked merely the bare beginning of the use of steam power on railroads, and ocean transportation by steam did not become important for another generation. Many other important inventions, too, have been made since 1825, as, for example, shoemaking machinery, agricultural machinery, improved processes of making steel, the gas engine, the telegraph, telephone, and radio, and the aëroplane.

In France the Industrial Revolution did not get well under way until about 1825, and in Germany not until about 1850, and in some other European countries even later. We may say then that the industrial stage of economic evolution is comparatively young, only in England having been in existence more than a century. The average man fails to realize how profound were the changes that resulted from the application of the mechanical inventions of the Industrial Revolution and how recently they have occurred. These changes include a vast expansion in the use of capital, a great increase in the average size of the individual business establishment, the more elaborate division of labor, the growth of a wage-earning class sharply marked off from the employing class, the development of business competition on a national and international scale made possible by the widening of the markets by cheap transportation, and, finally, an enormous increase in the effectiveness of labor, particularly in manufacture and transportation. The increase in the effectiveness of labor in manufacture and transportation permitted a tremendous increase in population in the countries of western Europe and newer countries such as the United States, led to the concentration of population in manufacturing and commercial centers, and profoundly affected the agricultural industry both in old countries and in new. Let us consider some of these developments in more detail, and to provide ourselves with a point of departure let us note briefly the methods of production and the form of economic organization before the time of the Industrial Revolution, as illustrated by conditions in England.

11. Agriculture before the Industrial Revolution. In England, as in other countries, towns were small during the Middle Ages, and possibly nine tenths of the people lived in the country, most of them connected with large estates called "manors." The manors were "held" by the lord of the manor from the king or some other overlord, and were cultivated by various classes of tenants who were bound to the soil. The land was very ineffectively cultivated in what is called the "open-field system." A common arrangement was to lay off the arable land of the manor into three fields, one to be devoted to some crop planted in the fall, such as wheat, another to some crop planted in the spring, such as oats or peas, and the third to lie fallow. This represented a convenient but wasteful

method of crop rotation, each piece of land being idle one year out of three. Equally wasteful was the method used in cultivating the fields. Each field was divided into long narrow strips perhaps three or four rods wide, but sometimes only one rod wide, and the strips were separated by a "balk" or boundary of unplowed land, so that a considerable proportion of the whole field bore no crop, and the cultivated portion could not be conveniently cross-harrowed, and consequently could not be cultivated to best advantage. Each tenant had the right to cultivate one or more of these strips for his own use. In return for this privilege he had to help cultivate the strips or fields belonging to the lord of the manor, and to perform other work in the interest of the lord. The tenants lived in a little group of huts or village on the manor, near which were located also the church and the house of the lord, or manor house, and possibly also a mill and blacksmith shop. In addition to the arable land the manor contained considerable areas of natural meadow land, pastures, and woodland, to all of which the tenants had certain rights. These medieval manors were largely self-sufficing: that is to say, they produced practically all the goods they consumed, the exceptions consisting of luxuries imported for the lord of the manor and his family, and certain articles that were necessary but could not be produced on the manor, such as salt, iron, and medicines.

Long before the Industrial Revolution the manorial system of agriculture in England began to break up. The tenants or serfs who were bound to the soil gradually obtained their freedom, either becoming craftsmen or merchants in neighboring towns or remaining in the country as small landowners, free tenants of large landowners who did not themselves cultivate their land, or as agricultural laborers. The unfenced areas of meadow, pasture, and woodland, which were in the nature of semi-public land, were through a series of so-called "enclosure" movements enclosed into privately owned fields, and in many cases the old strips of the open-field system were consolidated into fields, owned or cultivated by one man, the farmer thus having the use of one field of perhaps thirty acres instead of a large number of separate strips. But in large portions of the country the open-field system remained much as in medieval days. And up to the beginning of the Industrial Revolution the

masses of the laborers in England were still engaged in agriculture.

12. **Manufacture before the Industrial Revolution.** Although most of the people in medieval England lived in the country on the practically self-sufficing manors, here and there small towns grew up, most frequently around some fort or some place where a break in transportation occurred, as where goods were landed from abroad on the seacoast or unloaded from river boats for transportation across the land. These towns became convenient trading centers where the merchants dealing in the comparatively limited variety of articles of medieval trade could buy and sell or display their wares. In these towns certain handicraftsmen began to specialize at manufacturing various articles for sale, as, for instance, the shoemakers, weavers, millers, bakers, and smiths, and, adopting as their family name that of their occupation, became the ancestors of the numerous Shoemakers, Weavers, Millers, Bakers, and Smiths found in the average English or American community. Incidentally it may be noted that a similar development took place in Germany and other continental countries, and consequently among the Germans we find great numbers of Schumachers, Webers, Müllers, Beckers, Schmidts, and so on. Thus in any telephone directory we may find to-day a very good enumeration of the trades at which our ancestors in the Middle Ages specialized, and get a very good idea of the nature of the simple division of labor then practiced.

The various merchants or craftsmen in these medieval towns eventually organized merchant gilds mutually to aid and protect one another in their commercial activities, not altogether unlike our modern chambers of commerce. Merchant gilds are said to have been found in Italy and other European countries as early as the eleventh century. Somewhat later, as the towns grew and the number of craftsmen in a single trade became larger, craft gilds were organized, made up of members of a single craft.

The gilds had various purposes, including social and charitable aims, but their main purpose was to regulate and limit competition among their members for their own good, and often to bar outsiders from the local market. They had rules, for instance, against forestalling, engrossing, and regrating: that is to say, members of the gild were forbidden to forestall their fellows in buying raw materials

or other goods before they were thrown on the open market or to buy up the whole supply, or to buy more than they required for their legitimate purposes with a view to selling to other members of the gild at a profit.

The craft gilds also laid down rules regulating the quality and price of the product, hours of labor, admission of new members to the gilds, and so on. The rules and regulations of the gilds, although designed for the good of their own members, to some degree protected the customers of the craftsmen by upholding high standards of workmanship. But to offset this advantage to the public was the tendency of the gilds to become exclusive in membership, and to restrict quantity of output in order to maintain higher prices for their product.

Before the Industrial Revolution, when manufacture was still in the handicraft stage and things were still made by hand, as the word "manufacture" literally implies, and not by machinery, little capital was required to engage in business with a fair prospect of success, except in overseas trade in which a ship and cargo represented a considerable investment. In standard trades, such as that of the weaver, the tailor, or the shoemaker, all that was required for the independent business man was a small shop, which might also serve as his residence, a few simple tools or other appliances, and a small stock of raw materials. For inland transportation the capital used consisted of the pack-horse, the cart, or the wagon, or, on rivers, small boats. Nearly all avenues of business were open to the capable and industrious workman who learned a trade. In the little shops the proprietor himself worked at his trade, assisted perhaps by a journeyman or two and by one or more apprentices. The journeymen were men who had learned the trade, but who had not yet saved enough to venture into business for themselves; the apprentices were boys working for their keep and the opportunity of learning a trade. Both journeymen and apprentices could in time hope to engage in business for themselves. Wages were small, saving was difficult, and the rewards of a life of industry meager at best. But so small was the amount of capital required, so numerous the shops in proportion to the population, that a workman could reasonably hope to pass progressively through the stage of apprentice and journeyman into that of the independent proprietor — his own master.

The typical master was a former apprentice and journeyman; the typical apprentice or journeyman, a future master. Between these classes there was no sharp cleavage.

Within the trade there was little subdivision of labor. The number of workers in a shop was small, and each worker would be likely to perform most if not all of the operations involved in producing the finished product. In making shoes, for example, he cut out both the soles and the uppers, and sewed them together, and performed the other operations required. The shoe, good or bad, was the product of his labor, in which he might take pride or of which he might feel ashamed. The market for all goods except those light in weight and of considerable value was mainly local, since costs of transportation over great distances prevented a producer from selling cheap and even moderately bulky articles in distant markets. All these things made for close personal relations between producers and consumers, and between master and workman.

13. The domestic system. In the latter part of the handicraft stage a new system of industry developed in England which has been called the "domestic system." It had its beginning apparently in the fifteenth century, and flourished principally in the cloth-making industry. Under the gild system the craftsman who produced the cloth, with the aid of journeymen and apprentices, owned his tools and raw materials, and was an independent business man. But under the domestic system a new class of business men appeared called "merchant manufacturers," or, in the clothing industry, "clothiers." They might also be called "capitalist employers." In the clothing industry, for instance, they bought wool and gave it out to workmen to be spun, woven, dyed, and so on in the workers' own homes, receiving back the finished product and paying the workers wages for their labor. Often the workers did not own their own tools and other manufacturing appliances; these were rented to the workers by their employers. Much of the work was performed in small villages or in the country, possibly to escape the hampering regulations of the craft gilds. Sometimes all the stages of manufacturing cloth would be carried through under one roof, but in some cases the materials would be handed out successively to carders, spinners, weavers, and other workmen, being thus carried

back and forth from employer to workmen in a manner wasteful of time and labor. The domestic system, although not an efficient method of manufacture, had some advantages. It permitted workmen to combine cultivation of the soil with manufacture, thus making full use of their time the year round, and it kept the population scattered in the open country instead of tending to herd it together as does the modern factory system. Whatever its advantages or disadvantages, the domestic system, and other phases of the handicraft system, became suddenly antiquated by the advent of the age of machinery and mechanical power.

14. **Machinery, mechanical power and the factory system.** In 1764, Hargreaves invented the spinning jenny, a machine that would spin eight threads at a time against the single thread spun by the spinning wheel. Improved from time to time and operated by the mechanical power supplied by another new invention, the steam engine, this device was applied successively to the spinning of cotton, wool, and silk, and other textiles with astonishing results. Workers operating modern spinning machines produce a hundred times as much yarn per hour of labor per worker as the spinners formerly produced with the spinning wheel. In other words, a worker now produces more yarn in an hour than the worker of two centuries or less ago could produce in a week working from dawn to dark. The power loom marked a similar, although less pronounced, improvement over the hand loom. In industry after industry machines were invented to do what was done before by hand. The machine operated by steam power, and later by electricity in many cases, largely displaced the hand tool driven and guided by human muscles. Not only in manufacturing, but in mining and transportation, and even in agriculture, the machine has made its way. Improved processes of making iron and steel have helped to supply the chief materials from which the machines are made. Weak human muscles, easily tired, and often unsteady, cannot compete with the machine, powerful, swift, tireless, and accurate in its movements. All work that a machine can do, machines eventually will do — all work that can be reduced to a routine of mechanical movements. It is sometimes said, without much exaggeration, that we have machines now that can do everything but think.

The introduction of machinery and mechanical power marked

the beginning of the end of the small manufacturing plant, with its simple and inexpensive equipment and its few workmen. To produce shoes, for example, by machinery requires not merely one machine, but many. There is no machine that makes shoes; only machines that perform certain operations — like cutting out soles, sewing in the linings, pegging the heels, etc. There are more than a hundred such operations, and for nearly every operation there is a special machine. To house these machines a large building is required, and to turn the wheels, mechanical power. The machines must be put under a common roof for the sake of efficiency in operation and management, and therefore the workmen that operate the machines must also be brought together in one large building, or at any rate in a number of buildings close together. Thus the small-shop system gave way to the factory system. Instead of the small shop, with its small capital and its master with his few assistants, all likely to become masters in their day of similar shops, we have the large factory, with scores, hundreds, or even thousands of hired workmen operating machines worth many thousands and even millions of dollars, in buildings worth even more. For these workmen the chance of becoming independent business men is remote. True, we read many stories of office boys becoming presidents of great business concerns, and we say glibly that every man has his chance. But it is the one chance in a hundred or a thousand. There simply are not enough presidencies to go round. If industry is so organized that the number of wage-earners exceeds the number of establishments one hundred to one, then obviously there is on the average only one chance in a hundred for the wage-earner to become the owner or manager. Wage-earners, most must remain.

15. Workman's condition changed for the worse in some respects. The workman's position in relation to his employer was thus changed in several respects. The typical workman no longer had a prospect of becoming his own employer. He was no longer one of a small group with close personal relations with his employer, but merely one of hundreds or thousands of employees with whose personal affairs the employer had little concern. Finally, whether one particular workman out of the hundreds employed stayed or left was a matter of small importance to the big employer. A workman could be replaced as easily as a broken-down machine.

In another respect, too, his position was changed. Whether he worked in a textile mill, a shoe factory, or in other manufacturing establishments, he no longer by his own efforts made a complete article which he could point to as the product of his industry and skill. He became a mere machine attendant, concerned only with the constant repetition of a single simple task. His work became as mechanical, almost, as that of the machine he operated, and often dreadfully uninteresting and tiresome. The machine rather than the workman was the dominating factor, determining the quantity and quality of product. With small interest in his work, with no pleasant personal relations with his employer, and frequently very unpleasant ones when the employer chose to show his power, the workman's position was not a happy one, and one might ask, Why did these men desert their small shops and rush into the factories? The answer is, economic necessity. Because of the greater efficiency of the machine system, the factories could undersell the small shops in a competitive market. The hand-loom weaver who stuck to his trade could not sell the few yards of cloth produced in his shop for enough to sustain life. The records show that some who stubbornly refused to fall into line in the factory system starved beside their looms. As it was with the weavers, so it was with hand workers in other trades. The choice lay between the factory job and starvation.

In transportation and mining a similar change occurred — from the small establishment or concern to the large one. The packhorse, the cart, and the wagon gave way in large part to the railroad. Coal and metal mining became ventures on a larger scale with more extensive use of mechanical equipment, and with more men employed per establishment. Thus in various branches of industry a new problem emerged — the problem of labor and capital, the relation between a comparatively small number of powerful employers and a much larger number of more or less helpless employees dependent upon these powerful men for employment and their daily bread.

16. Complex division of labor. In the preceding section it was stated that in the factory workmen no longer individually produced complete articles as they did in the old shops. Numerous workers now perform the numerous operations involved in turning out a

factory shoe — each specializing on a particular task for which a machine has been devised. In other words, simple division of labor has given way to complex division of labor. It is possible that complex division of labor would in time have developed independently of machine production because such subdivision of tasks brings advantages over simple division similar to the advantages that simple division of labor has over the jack-of-all-trades system. Just as the man who specializes on making shoes gains certain advantages over the jack-of-all trades — advantages arising from natural adaptation, dexterity, saving in time otherwise lost, and the more effective use of tools — so the sole cutter who does nothing but cut soles gains similar advantages over the less specialized shoemaker who performs ninety-nine other operations. But in addition to these four advantages over simple division, complex division of labor gains the further advantages arising from the use of machinery and mechanical power, since it is only through complex division of labor that these aids to production can be employed, in most cases. Complex division of labor and the use of machinery and mechanical power thus go hand in hand. Without the first the second would not be practicable. With the second the first becomes tremendously more effective. Both are products of the Industrial Revolution.

17. Geographical division of labor. A third form of the division of labor has become much more important as a result of some of the inventions of the Industrial Revolution — the geographical division of labor having assumed a new significance with the cheapening of transportation by the railroad and the iron steamship. By geographical division of labor we mean the specialization by the people of a particular locality in the production of a few products or of a single product. The cities of Lynn and Brockton in Massachusetts are predominantly given over to the manufacture of shoes which are sold in many parts of the United States and in many foreign countries. With the money received for these shoes, these Massachusetts shoemakers, employers and employees alike, buy the various other things they use; for instance, bread made from wheat grown perhaps in the specialized wheat-growing counties of Kansas, coffee produced in the coffee-growing district of Brazil, sugar from the sugar-producing centers of Cuba or Java, or collars made in Troy, New York.

The advantages arising from geographical division of labor are somewhat similar to those arising from the simple division of labor. A whole community or section of a country may have a special aptitude for producing some particular article — either because of the character of its natural resources or because of the skill of its people. Kansas is naturally adapted to the production of wheat because its soil and climate are peculiarly adapted to that product. Cuba is naturally adapted to the production of sugar cane for the same reason. Germany is naturally adapted to the production of coal-tar dyes and other chemical products because Germans have the studious habits and the patience necessary to carry through the chemical experiments on which a chemical industry is based. A second advantage of geographical division of labor arises from the increased efficiency that comes through the development of special services and facilities. In the shoe manufacturing centers of Massachusetts, for example, shops and factories have grown up where shoe manufacturers may buy accessories, or findings, to advantage, such as lasts, buttons, eyelets, etc. Manufacturers have little difficulty in securing the services of experts of all kinds required in the shoe industry. In short, a community may specialize at making something for which it is naturally adapted, or it may specialize at something for which it is not particularly well adapted by nature, and gain proficiency through constant practice. Wheat-growing in Kansas is plainly a case of natural adaptation. Shoemaking in Massachusetts represents predominantly a case of proficiency gained through constant practice — the industry there having been established more or less by chance. However, the presence of a small body of workers with some knack for making shoes had something to do with the beginning of the industry.

Some geographical division of labor has existed since ancient times, but, as Adam Smith long ago said, the division of labor is limited by the extent of the market. When transportation costs are too high, goods cannot be marketed far from the place where they are produced. Cheapening of transportation makes possible the shipping of goods to great distances, and gives wider scope not only to geographical division of labor, but to complex division of labor within the geographical district by providing a market for a larger output, and making possible larger factories in which alone complex division of labor can be utilized to full advantage.

18. Increased production of goods. All these improvements in methods of production have made it possible to produce goods with a rapidity and ease that would appear miraculous to men who lived a thousand or even two hundred years ago if they could be brought back to life to view the spectacle. They would see women and girls with a twist of the hand setting in motion huge machines spinning hundreds of threads with their hundreds of spindles whirling at great speed; automatic looms of intricate design weaving industriously, requiring no human attention except when a broken thread threatens harm to the fabric, and then coming uncannily to a stop until human fingers help them do the one thing they cannot do, mend the thread; a wonderful device drawing into itself a strip of green paper and a roll of thin wire, and spouting out in rapid succession packets containing hundreds of pins neatly stuck in rows on paper; other similar machines turning out bolts, nuts, screws, snap-fasteners, electric light bulbs, newspapers. They would see a half-dozen men with a locomotive and a long string of cars transporting many hundreds of tons of goods hundreds of miles a day; another small group loading ten thousand tons of iron ore on a ship in forty minutes; a farmer plowing deep and well with the aid of a tractor a twenty-acre field in a day. All these marvels and more they would see and compare with work done by workers long ago, at the spinning wheel, the hand loom, the blacksmith's forge; with the small cart or wagon creaking along a few miles a day on a dirt road; with the agricultural laborer and his hoe, or his ineffective plow and tired horse or mule. Seeing these things they might wonder, as men living to-day sometimes do, why this enormous increase in the effectiveness of labor has not provided every human being with all the goods necessary for his welfare; why poverty is still the lot of millions.

19. Why poverty still exists. There are various reasons why poverty still exists. In the first place, the increase in the effectiveness of labor is not so great as may at first sight appear. The great number of machines and the other capital equipment which make production seem so easy must themselves be produced with human labor. We must reckon with the labor expended in making the capital as well as with the labor expended in using the capital. The girl who tends the machine in the textile mill does not by herself

alone spin the miles of thread. Other workers have helped her in that task — the mechanics who made the machine, the iron workers who produced the iron and steel from which the machine was made, the miners who mined the ore and coal without which the iron could not be made, and still other groups of workers who directly or indirectly had a hand in providing her with the machine, the building in which it was housed, and the fiber from which the thread was spun. In the second place, no great gain in efficiency has been made in some fields — as in retail trade, in clerical work, in professional work. Here one man accomplishes but little more than a century ago. In the third place, much energy is expended in making goods that do little to promote welfare, such as liquor, foolish playthings, and objects of display for the masses and extravagant luxuries for the rich. Worse still, the most advanced nations of the world destroy enormous quantities of goods in wars, and kill and cripple millions of their most capable young men at the height of their productive power. Moreover, the capacity to produce is often not utilized to the full. Employers and employees quarrel over the division of the product, and production temporarily comes to an end. Factories close down, and millions of men are idle. Even in the absence of open quarrels there may be dissatisfaction on the part of the workers over real or fancied wrongs, and then they loaf on the job, or even secretly injure or destroy the very machinery that makes their labor effective. Employers, too, are often inefficient and stupid, producing things that are not wanted, or too much of some things and too little of others. Ill-advised government policies also obstruct production.

Despite all these things, however, the quantity of goods produced for human consumption has so increased during the last two hundred years that the masses in advanced industrial countries may enjoy comforts and luxuries that even kings did not dream of hundreds of years ago. And if men would but cease their quarreling and fighting, their extravagance and waste, and would try seriously to understand the industrial system under which they live and strive to correct its defects, it is probable that no human being would need to suffer from lack of necessary goods. We in the United States at least now have the capacity to produce everything we need if we will but use it to the best advantage.

EXERCISES

1. What is capital? How and why is it accumulated and maintained?
2. What is the distinction between capital and land? Between capital and money? Is all capital producers' goods? Are all producers' goods capital?
3. Enumerate the advantages of the simple division of labor; of complex division of labor; of geographical division of labor.
4. What is meant by economic evolution? Name the stages of economic evolution.
5. What is meant by the Industrial Revolution? When did it take place? Enumerate the great inventions of the Industrial Revolution. What were the results of the Industrial Revolution?
6. Before the Industrial Revolution and the extensive use of machinery in production, the people of England managed to produce goods enough to live on, and to bring up children. Why is it that now, with the extensive use of machinery which in some cases increases the output of the worker a hundred fold, poverty still exists in that country? This question may be applied to other countries as well, such as Germany, Belgium, and Italy.

REFERENCES

I

Edie, L. D. *Economics: Principles and Problems*, chapters 2, 3, and 4.
Ely, R. T. *Outlines of Economics* (1923 edition), chapters 2 and 3.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 4.
Hobson, J. A. *Evolution of Modern Capitalism*, chapters 1–4.
Marshall, L. C. *Readings in Industrial Society*, sections 17–40.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 41–46 and 57–58.
Taussig, F. W. *Principles of Economics* (1921 edition), chapter 3.

II

Bogart, E. L. *Economic History of the United States.*
Bücher, K. *Industrial Evolution.*
Cheyney, E. P. *An Introduction to the Industrial and Social History of England.*
Gras, N. S. B. *An Introduction to Economic History.*
Ogg, F. A. *Economic Development of Modern Europe.*
Toynbee, A. *The Industrial Revolution.*

CHAPTER III

EXCHANGE, VALUE, AND PRICE

1. Improvements in methods of production bring new and perplexing problems. One of the interesting conclusions that may be drawn from a study of economic history is that improvements in the methods of production tend to bring with them new and perplexing economic problems. Thus the simple division of labor brought the problem of exchange. To his trouble in producing there was added for the specialized worker the new problem of trading off his surplus stock to good advantage for other things that he wanted. The use of capital raised the question of a just distribution of the product between the man who produced or owned the capital and the man who used it. The growth of the factory system brought to the front the most serious problem of the relation between employers and employees. The use of money and credit, which greatly facilitated production and exchange, brought many problems so important that to several of them we must devote whole chapters of this book. Among these problems are those connected with the business cycle — crises, panics, and depressions. The advantages gained from large-scale production are accompanied by the danger of monopoly. Following on the heels of geographical division of labor come the problems of transportation and foreign trade. It is needless to specify further. Efficiency is purchased at the price of complexity. Unless we understand these problems we cannot solve them. We cannot understand them without serious study, since they are perplexing and confusing. Left unsolved, they lead to injustice, unrest, vituperative oratory, and danger of bloodshed, and possibly to total economic disorganization. It behooves the serious-minded then to study these problems that they may aid in an intelligent way in keeping our economic organization from being wrecked by its own complexity. In the following chapters some of the problems here mentioned will be discussed in detail. In this chapter we will introduce the subjects of exchange, value, and price.

2. Division of labor makes exchange necessary. The immediate problem that was presented when men adopted the simple division

of labor — that is, when the butcher, the baker, and the candlestick-maker displaced the jack-of-all-trades — was that of exchange. It became necessary for the shoemaker who produced nothing but shoes to trade his surplus stock of shoes for the various other things which he needed for himself and family, and for the hatter likewise to dispose of his hats. It is true, the problem of disposing of the surplus and of obtaining other needed articles could have been solved without resorting to exchange. The butcher, the baker, the candlestick-maker, as well as the shoemaker and the hatter, might have turned the products of their labor over to a general custodian of the goods of the community for the use of the people in general, and to this custodian they could have gone to get the things they needed. Such an arrangement whereby all producers turn their surplus stock over to the community and draw from the common store such goods as they need is called "communism," and many people have urged the adoption of such an arrangement as representing an ideal system of sharing the products of industry. Without pausing here to discuss the merits or demerits of communism at length, we may simply remark that it appears to have two great faults which alone are enough to make it impracticable. Few goods would be made and turned into the common store, and many would be demanded from the distracted custodian. In other words, the people would desire to work too little and to consume too much. It is for these main reasons that communism has not flourished while exchange has.

3. Difficulties of barter. The simplest and most direct way of exchanging one's goods for other goods is by the method of barter, or, to use a more colloquial expression, by the method of swapping. Doubtless all exchange was first conducted by barter, and that method is still used to some extent. For the most part, however, barter has been displaced by money exchange, or, in other words, by buying and selling, because money exchange has certain advantages over barter. To state the matter concretely, the shoemaker found it more convenient for several reasons to sell his surplus shoes for money and with money to buy hats than to trade his shoes directly for the hats he needed. Let us note what these reasons are.

Since money exchange largely superseded exchange by barter before the introduction of the factory system and the complex division

of labor, we may use for illustration the case of the old-time shoemaker. Assume that he has a considerable stock of shoes on hand which he wishes to trade for various other articles he needs, including hats. His first difficulty will be in finding a hatter who wants to trade hats for shoes. This is referred to as the double coincidence of barter — each party to the trade must have what the other wants, and want what the other has. His second difficulty will be to agree with the hatter on a ratio of exchange. Shall they trade at the rate of one pair of shoes for two hats, two pairs of shoes for one hat, or at some other rate? The third difficulty that might be encountered is that they might agree, not that one hat was worth one pair of shoes or two pairs, but that seven pairs of shoes would be a fair trade for eleven hats. Since they could not trade in fractions of hats or shoes, they could not trade at all unless the hatter took seven pairs of shoes and the shoemaker eleven hats. Both might be obliged to take more than they wanted or give up the trade. If they did trade on such terms, and both later made other trades similar in nature, then they would both eventually have accumulated a considerable quantity of goods of various kinds that they had no use for. This would involve then further trading of a most troublesome kind, and give rise to the fourth difficulty of barter — the necessity of knowing a fair rate of exchange for any one of a large number of articles in terms of any one of a large number of other articles, with the value of many of which the trader might be unfamiliar. The shoemaker, being accustomed to trade in shoes, might have a fairly definite idea as to how many shoes he might reasonably offer for a certain number of hats, coats, or shirts. But after having traded about considerably he might be confronted with the stupendous problem of deciding whether a blind horse, a lame mule, and a belligerent goat would be a fair trade for a pig, a gold ring, and a dog. Truly, trade under such circumstances might be interesting and intellectually stimulating, but it would be wasteful, requiring much time and energy that might otherwise be devoted to production.

4. Money introduced to avoid the difficulties of barter. The difficulties of barter were so obvious and serious that traders naturally welcomed any device that would obviate them. The device hit upon was money, which came into general use at a very

early date in some such manner as the following: The shoemaker in trading off his shoes found that some things were desired by more people than other things, and that a few commodities were in such high favor that they were desired by practically everybody. Furthermore, he found that practically everybody who had any property at all owned some of these highly regarded articles, such things as furs, shells, grain, gold, silver, or copper. As soon as our shoemaker found which one of these popular articles was most highly esteemed and widely owned, he was able greatly to reduce the time required to dispose of his surplus stock of goods and to acquire in exchange therefor the things he wanted. Assume that the most highly esteemed and widely owned commodity in his community was silver. Then, if he wanted a hat, he no longer needed to find a hatter who wanted shoes. He simply found some one who wanted shoes, and took silver in exchange for the shoes. Since silver was generally desired, he could then trade some of his silver to any hatter for a hat, and so with any other articles he desired. Silver thus used we may refer to as money or a medium of exchange. This method of trading avoided most of the difficulties of barter. The double coincidence of barter disappeared. The shoemaker no longer had to trade his shoes directly for the things he wanted. He no longer had to accept in exchange various articles which he did not want in order to get rid of his shoes. One difficulty remained — the difficulty of agreeing upon the amount of silver that he was to receive for his shoes, and the amount that he was to give for the things which he wanted, but once this rate of exchange was agreed upon, there was no difficulty encountered in closing the deal, regardless of the ratio. The silver could be cut into pieces of any desired size or weight. The trouble of the seven to eleven ratio that perplexed the traders in the shoe-hat deal was now easily overcome. If the agreement was to trade one pair of shoes for seven elevenths of a certain piece of silver, they simply cut that much off the silver and closed the deal. Silver is divisible without injury to its value. Hats and shoes are not. Even the rate of exchange could be more easily agreed upon, once silver came to be generally used as a medium of exchange in the community, because, after a time, a certain quantity of silver would become recognized as a fair trade, or price, for a pair of shoes, and another quantity as

a fair price for a hat, and so on. Since people had fewer ratios of exchange to bother with they gained more definite notions about the few they did use.

In this general way, then, certain commodities came into use as money in various communities. In some communities one commodity might serve the purpose, in others, another, and in the same community various articles have been used as money at various times and even at the same time.

5. The uses, or functions of money. An article that is used as money serves, or may serve, a number of purposes:

(1) It may serve as a medium of exchange, as explained above.
(2) It may serve as a measure of value.
(3) It may serve as a store of value.
(4) It may serve as a standard of deferred payments.

These four purposes, uses, or functions of money require a few words of explanation. The use of money as a medium of exchange has already been sufficiently illustrated in our account of the shoemaker. However, there is a tendency for students to accept the phrase "medium of exchange" without realizing that money is literally a medium, a go-between, an intermediate agent, sought after by the shoemaker, not for its own sake, but for the service it renders in obtaining for him hats, coats, and shirts in exchange for his shoes. He seeks money for the same indirect purpose that a spiritualist who wants to get into communication with the soul of his departed grandfather visits a spiritualistic medium. Both money and the spiritualistic medium are but means to an end, not ends in themselves. What the shoemaker is primarily interested in is not the quantity of silver that he gets for his shoes, but the quantity of other goods which he gets for the silver received for his shoes. Some of our gravest economic problems grow out of the failure of many people to understand this simple fact.

The use of money as a measure of value is closely related to its use as a medium of exchange. If, as we have assumed in our illustration, silver has come to be generally used as a medium of exchange, the shoemaker naturally measures the value of his stock of goods in terms of silver — his one hundred pairs of shoes, for example, he may reckon as worth fifty ounces of silver, or one half ounce of silver per pair. Other goods are valued in the same way. In other

words, money becomes a common denominator of value. By value, it should be noted, we mean power in exchange. The value of any good is the quantity of other goods one can get in exchange for it. When some particular commodity, like silver, comes into use as money, and is used as a measure of value for all other things, we call the quantity of money we can get for anything its price. In other words, price is value expressed in terms of money. Since, as pointed out in the preceding paragraph, money is desired, not for its own sake, but for what it will buy, it follows that the shoemaker should be less interested in the price of his shoes — the amount of money he gets for them — than in their value — the amount of other things he can buy with the money he gets for them. It is important, therefore, that we should not forget the distinction between price and value. When the people of a democracy do forget this distinction, they are likely to proceed forthwith to legislate themselves into serious economic difficulties. On this matter more will be said in later chapters.

Of the use of money as a store of value little need be said, since that use of money is no longer important. In former times when the precious metals, gold and silver, came into use as money, people often hoarded up fortunes in the form of money, because in this form their wealth could easily be hidden away, and thus protected from unscrupulous public officials or private marauders. In countries as well governed and as stable politically as the United States is to-day, it is not necessary for people thus to conceal their wealth. Furthermore, there are so many opportunities for profitable investment which yield the owner a good income that it is foolish as well as unnecessary for one to store up his wealth in the form of gold or silver and hide it away.

On the other hand, the use of money as a standard of deferred payment is now more important than in earlier times. Money is thus used when one buys something and promises to pay for it later, as a house or a factory. In such cases one promises to pay a certain amount of money, and the use of money greatly facilitates such payments. It would be convenient neither to the buyer nor seller to have the promise made in terms of commodities in general, or even in terms of some particular commodity not in general use, since at the time of payment the debtor might have none of that article,

and the creditor might not want any. Since a very large proportion of all goods bought to-day, both by business men for business purposes and by consumers for pleasure, is bought on credit — that is, by a promise to pay in the future — this use of money has become very important, and involves some intricate problems that perplex both economists and statesmen. On this more will be said in our later chapters on money.

6. Gold money an example of the survival of the fittest. The use of money followed quite naturally the introduction of the simple division of labor to obviate the difficulties of barter, as already pointed out, and various articles served at various times and places for money. Cattle, wheat, rice, tobacco, furs, shells, gold, silver, copper, iron, and many other commodities have been thus used. For reasons that can more conveniently be discussed later, gold and silver finally became the most commonly used money. These metals achieved this distinction through a process of natural selection and the survival of the fittest. Their peculiar characteristics or qualities fitted them to perform the four functions of money better than any other substances. Between gold and silver there was a long period of rivalry to win first place in the leading monetary systems of the world, and for a time they ran a neck-to-neck race, and were looked upon with equal favor by the people of the leading countries of the world. Finally, during the nineteenth century, gold won the race throughout Europe, in the United States, and in most other countries of any considerable economic importance. Silver was not banished altogether. It was still permitted to serve as a medium of exchange in a subordinate capacity. Gold, however, became the sole standard or measure of value and standard of deferred payment. In other words, price was understood to mean the amount of gold a thing was worth, and when silver coins were used as a medium of exchange they were regarded, like paper money, merely as substitutes for the standard money gold, and were accepted as money only on the understanding that they would be redeemed in gold. The subject of price can be understood better if we illustrate it by a concrete statement of just what is meant by price in the United States. Likewise the relation of gold to other kinds of money can be made clear by a brief description of the monetary system of the United States.

7. What is a dollar? We have already defined price as the amount of money given for something, or as value expressed in terms of money. In the United States, gold is the standard money — that is, gold is the money used as a measure or standard of value. Price in the United States means, therefore, a certain quantity of gold. Everybody is aware that we state prices in this country in terms of dollars and cents. But possibly not one person in a hundred could answer the question: What is a dollar? This question was put by the writer to a class of forty college students, some of them juniors and seniors, and not one was able to answer. The dollar is our unit, or measure, of value, and by act of Congress consists of 23.22 grains of pure gold. So that when we say the price of something is a dollar, we mean that a unit of the commodity in question can be traded for 23.22 grains of gold, which represent its value in money. A $10,000 house is worth and can be exchanged for 10,000 times 23.22 grains of gold, or about forty pounds of the precious metal. For the sake of convenience in trading, gold that is to be used as money is generally stamped into coins. This makes it easy to identify, and prevents fraud, and for most purposes makes it easier to handle. It should be noted, however, that if a man sells a house for $10,000, it might be a matter of indifference to him whether he received his forty pounds of gold in a single lump or in gold coins. So long as the lump contained the correct weight of pure gold, it would be worth the face value of the $10,000 in gold coin. Now it happens that, although the gold dollar is our unit of value, our Government no longer coins a one-dollar gold piece because it has found that such a coin is too small for use as a medium of exchange. For a medium of exchange we use other coins and paper money. In active circulation we find the five-, ten-, and twenty-dollar gold pieces, the silver dollar, half dollar, quarter, and dime, the nickel, and the penny, and six kinds of paper money. All this money, except the gold coins, is freely accepted at its face value only because it represents directly or indirectly a promise to pay its face value in gold. The material of which it is made is worth much less, the silver in the silver coins being worth only about half their face value, the nickel and copper in the smaller coins less than half, and the paper in the paper money obviously a negligible fraction of its face value. About these various kinds of money more will be said later in our

chapters on money and banking. The main point to be carried forward here is that, although we have silver dollars and paper dollars, and multiples and fractions thereof in circulation, serving as a medium of exchange, our standard dollar is the gold dollar, and all our prices are expressed in terms of this gold dollar, for which all other dollars may be said to serve merely as messenger boys. To emphasize what has already been said, a dollar means in the United States, in the last analysis, 23.22 grains of pure gold, not a silver cartwheel nor a piece of paper. It is something very specific, definite, and concrete. There is nothing mysterious about it. It is as plain as an old shoe — merely a little piece of gold, by means of which we have mutually agreed to measure our incomes and our fortunes and the value of the things we buy and sell. Yet out of this dollar and out of this agreement to use it for these various purposes have grown some of our greatest economic and political problems — about it have raged some of our most bitter election campaigns.

8. Money has become practically necessary under our present economic organization. When division of labor developed in its simple form, exchange became necessary, but the use of money did not. Money was then not a necessity, but merely a convenient means of escaping the difficulties of trade by barter. People could have got along tolerably well without money. Hats could have been traded for shoes, meat for bread, bread for candles. Neither the butcher, the baker, nor the candlestick-maker need have lacked the necessaries of life for the lack of money. The comparatively small number of wage-earners, the journeymen, could have been paid in commodities. What pay the apprentices got was in consumers' goods, and not in money — they got their board, lodging, and clothing. But when the factory system developed, with its use of machinery and other capital and complex division of labor, money ceased being merely a convenience and became practically, if not absolutely, a necessity. Industry as now organized could not get on tolerably well without the use of money. It is doubtful if it could get along at all. Could the business men who operate a steel mill pay for their raw materials by trading for them their finished product? Would the wage-earner feel satisfied if paid in steel ingots, rods, bars, and wire? Or if paid in consumers' goods obtained

by the steel mill owners in trade for their steel? Imagine the difficulty experienced by the United States Steel Corporation in fixing wage scales for its quarter of a million employees in terms of a variety of consumers' goods such as would satisfy all! How agree upon the quantity and the variety, and the quality of each kind? Again, how could a business concern calculate its profits without the use of money as a measuring stick? How add up the various items of its income and costs into grand totals in order to strike a balance at the end of the year? Under simpler economic conditions the items were not so varied, and a simple process of counting objects might give the owner a fair idea of whether or not he was prospering. But such a system of keeping books would not answer under our present highly organized industrial system. Money we must use now as a measure of value and a medium of exchange if our business is to be carried on effectively. And its use for various purposes has become practically indispensable to the consumer as well as to the business man. How simple it is, for example, to pay your street-car fare with money! How complicated to pay it in any other way! How simple to go to the "movies" occasionally and pay admission at the door in money! How complicated to arrange with your employer to take part of your pay in admissions to the "movie," paid for by him in steel ingots which you helped to produce! The plain truth is that the use of money simplifies for all of us, both as producers and as consumers, operations which would otherwise be exceedingly complicated, and perhaps impossible. People who advocate the abolition of money because its use gives rise to some serious problems and sometimes leads to injustice apparently do not realize that fact. The obvious remedy is not the abolition of money, but the study of money and its uses, so that it may be used more intelligently.

In this chapter we have given only the essential facts concerning the use of money and its importance in an economic system organized on the basis of production for profit. In later chapters money and monetary problems will be considered in more detail.

9. Price, a most important subject the study of which is curiously neglected. Under our present form of industrial organization comparatively few goods are produced and consumed by the same person. Practically everybody is engaged in production for exchange.

Most of the goods that most of us enjoy are bought with money we receive for the goods or services we sell. The work of the farmer and that of the housewife offer the most conspicuous exceptions to the general rule. Farmers still produce in many cases many articles of food for themselves, and the work of the housewife is mainly directed to the production of goods for the use of her own family. And even in these two cases the drift is strongly away from production for use and toward production for sale. The farmers buy larger and larger proportions of their food, and the housewives buy more and more ready-made consumers' goods from the grocery, the bakery, and the clothing store, and tend to find employment for their spare time in business or the professions.

We are, therefore, tremendously interested in the rate of exchange of the things we sell for the things we buy, and since exchange is now conducted for the most part by money, we are interested in price — value in terms of money. The business man is interested in the price of his product, and the prices paid for his raw materials and other producers' goods which he buys; the wage-earner in the price of his labor, and the prices that he pays for the goods he consumes. Everybody who is taking an active part in industry — who works for his living — is constantly buying and selling, and must realize that his welfare depends upon the relation between the prices that he receives for the things he sells and the prices that he pays for the things he buys. One would think, therefore, that everybody, having such a vital interest in prices, would make a serious study of prices — would try to understand what makes the price of a particular good go up or down, or what makes prices in general rise or fall, or what the effects might be on prices of government regulation of industry, of a protective tariff, of combinations in restraint of trade, of inflation of the currency, of a change in the banking laws, of restriction of output, or of a bounty on the production of gold. Curiously, however, few people attempt any such serious studies. Of superficial interest there is enough and some to spare. Parrot-like repetitions about the law of supply and demand, and sarcastic comments on politicians who would undertake to repeal the law of supply and demand by act of Congress. Monotonous repetitions of ancient fallacies, particularly during political campaigns when the rival candidates provide abundance of ma-

terial from which an economist free from political prejudices might produce a highly interesting Handbook of Political Bunk for the delectation of all persons well enough informed to recognize an economic fallacy or inconsistency when they see one. All this we have, but serious study of the fundamental principles of economics, of the forces concealed behind supply and demand, of the dangers that grow out of mistaken economic policies, private and public, there is dangerously little. It is in hope of encouraging such study that the following chapters of this book, dealing mainly with prices, have been written.

EXERCISES

1. What is the relation between the division of labor and exchange?
2. What is barter? What are the difficulties of barter? How did men learn to avoid these difficulties?
3. If a merchant were dealing in 100 commodities by barter, how many ratios of exchange would he need to know?
   Suggestion: He would need to know the ratio of exchange between each commodity and every other commodity. If x equals the number of commodities the number of ratios would be
   $$\frac{x(x-1)}{2}$$
   If one of these commodities were silver and were used as money, how many ratios would he need to know?
4. What are the four uses of money? Which of these are the more important?
5. In the United States, what is a dollar? A certain man had $10,000 in gold coins and $10,000 in silver coins. In a fire all the coins were melted into bullion, which he recovered after the fire. How great was his loss? Why?
6. Suppose a law were enacted and actually enforced abolishing the use of money. What difficulties would be encountered in carrying on the present system of industry?

REFERENCES

Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 125 and 126.

Moulton, H. G. *Principles of Money and Banking*, part I, sections 1–10 and 31–35.

Taussig, F. W. *Principles of Economics* (1921 edition), chapter 8.

Note: More extended references on topics treated in this chapter will be found appended to later chapters where money, value, and price are discussed in greater detail.

CHAPTER IV

BUSINESS ORGANIZATION AND PROFITS

1. Why every one is interested in business. Comparatively few persons in highly industrialized countries such as the United States produce the goods that they use to satisfy their own wants. Most of us buy most of the goods we want from others who have produced them for sale. We get the money to buy these goods by producing goods for sale ourselves, or by selling our labor or the use of our material possessions to others. People who are producing goods for sale are said to be engaged in business, and are called business men. If these business men hire others to work for them for wages or salaries, they are called employers, and the hired workers are called employees. The employees may be said to be engaged in business, but they are not generally called business men. Most of the workers in the United States are connected with business, either as employers or owners on the one hand or employees on the other. Important exceptions are government officials and clerks, teachers, preachers, and domestic servants. Most people are therefore obviously interested in business from two points of view. They are interested in the business in which they are engaged, for from it they draw the money to buy the goods they want. They are interested in other branches of business, upon which they are dependent for the goods they buy. Quite obviously those persons who are not engaged in business pursuits, such as teachers, preachers, government employees, and domestic servants, depend also upon business activities for the goods they buy, and indirectly draw their wages or salaries mainly from the incomes of business men. Business is, therefore, a matter of sufficient importance to all to justify serious study, since business feeds, clothes, and shelters us and provides us generally with the good things of life. We will proceed, therefore, to a brief analysis of business, business organization, and business profits.

2. Business defined. Business may be defined as production for sale. It may also be defined as buying to sell at a profit. Every business establishment is producing goods for sale, and is at the

same time buying to sell at a profit. This is not what one might think at first thought, since it might seem upon superficial examination that the manufacturer is producing, and not buying and selling at a profit, while the merchant is buying and selling, but not producing. It is true that the business of the manufacturer differs in nature from that of the merchant, but it needs only a moment's consideration to make clear that there is no such fundamental distinction between them. We need only to recall what is meant by production to show that the merchant is producing as well as buying and selling. Production means changing materials in form, time, or place, to add to their want-satisfying power, or utility. To some extent the merchant may be changing the goods that he handles in form and place, but primarily he changes the time in which they are available to the buyer. The merchant makes available for the buyer the good that he wants, when he wants it, in the quantity he wants it, and at the place he wants it. If the merchant is a reputable business man who knows his goods, the buyer gets a certain stamp of quality which he might miss if he bought the goods himself directly from the manufacturer. Our definition of production indicates, also, why the manufacturer buys to sell at a profit. No business man produces something from nothing, not even a manufacturer. He must have something to work upon, and something to work with, and, unless he does all the work himself, some one to work for him. The manufacturer under our present organization of industry must buy raw materials, tools and machinery, and labor, and either buy outright, or buy the use of, buildings and land. All these things, which we may call producers' goods, he mixes together with his own labor and business ability to produce his finished product, which he offers for sale. Essentially he is buying a variety of goods to sell at a profit, although the thing he sells is in form unlike the things he buys. He transforms the goods he buys into the goods he sells.

The difference between the merchant and the manufacturer is, therefore, not that one produces and the other buys and sells, but that the one is concerned mainly with producing form utility and the other with producing time utility. Both produce, and both buy and sell for the purpose of making a profit, and all other business men do the same, whether they are engaged in transportation,

mining, lumbering, agriculture, or what not. There is a tendency to exclude the farmer from the category of business men, perhaps for the reason that the farmer in the past has been more self-sufficing than others and has been engaged less in buying and selling for profit. Inasmuch, however, as the modern farmer produces primarily for sale, and buys land, tools, machinery, and other materials with which to produce the things he sells, he is as truly a business man as is a manufacturer or merchant.

3. Profits defined. We have defined business as production for sale and as buying to sell at a profit. All the terms in our definition except the term "profit" we may expect the reader to understand. But profit is a troublesome word, loosely used with a variety of meanings. Curiously, the very business men, who as we say are buying to sell at a profit, do not always understand very clearly just what profit is, confusing it, perhaps, with the difference between their money income and money expenses during the course of a year. It would probably be more correct to say that they do not know how to calculate their profits, since in a rough way every business man understands that profits represent the difference between what he pays for his goods and the price for which he sells them, and essentially that is just what profits are. But we must analyze profits more closely.

Profit may be defined either as the difference between the selling price of an article and its expenses of production, or as the net return to a business during a given period, usually a year, after all expenses of production have been met. Between these two definitions there is no contradiction, since one must merely multiply the number of articles sold by the average profit per unit to get the profit for the year. It would perhaps be better to say that one must merely divide the profit for the year by the number of units sold to get the average profit per unit, since the total profit is more easily ascertained than the profit on any unit of goods sold, as will appear from the discussion below.

4. Calculating profits. It might appear that profits would be easy to calculate, but they are not so, because great difficulties arise in determining the total expenses of production. These difficulties are of two kinds — first, the difficulty of determining what items to include as expenses or costs, and second, the difficulty of calcu-

lating the exact amount of each cost item. Let us first consider the matter of the items to be included under expenses of production. To make the matter as clear as possible we will take a concrete example. Smith, having worked some years as a clerk in a grocery store, decides to go into business for himself. To begin with, he must buy or rent a building, fixtures and other store equipment, a light truck for delivery service, and a stock of groceries. We will assume that he buys all these articles. This will take considerable money — more than a former grocery clerk would be likely to have — and we will assume that he borrows part of the amount necessary and that he pays interest on the amount borrowed. During the year he has various other expenses to meet — wages to pay to a clerk and delivery boy; light, heat, and water bills; insurance and taxes on his business property; and various other incidental expenses connected with running the store. Let us assume that he pays out the first year for all these purposes the following sums:

Building and equipment	$5,000
Groceries	30,000
Truck	1,000
Clerk and delivery boy	1,800
Interest on loans	600
All other expenses	500
Total paid out	$38,900

Assume that he sells his groceries on an average at an advance of twenty per cent over the prices he pays for them and that during the year he sells $24,000 worth of groceries. What are his profits? If they are represented by the difference between money paid out and money taken in, he makes no profits, but suffers losses of $14,900. But he still has on hand, we find, the building and equipment, the truck, and groceries which cost him $10,000, and which at the price he sells may bring $12,000. Shall we add to the $24,000 received for goods the value of the goods he still has left on hand? Yes, but we must be careful not to value them too highly. The groceries on hand should be valued at the price paid, not at the price at which they are to be sold, and if they could be replaced at a lower price, they should be valued at the lower price, and not at the price paid. The truck is partly worn out and should be valued at less than cost, let us say at $750. The building and fixtures have also been subject

to wear during the year, and should be marked down, let us say, to $4750. Such marking down in the value of business property because of wear, or age, is called "depreciation." Taking all these things into consideration we might calculate the young grocer's profits as follows:

Money received for goods	$24,000
Value of property on hand	
Building and equipment	4,750
Truck	750
Groceries	10,000
	$39,500
Money paid out	38,900
Profit?	$600

It would appear that his profits were $600, but we must examine further into the matter.

5. Profits and expenses further considered: the economist's definition. In our definitions of profits as given above we gave the business man's definition — difference between cost and price. With this definition properly interpreted economists would agree, but in order to calculate costs more definitely, the economist brings in another definition of profits — a definition that aims to define the reason for the existence of profits. We have already said that business is buying to sell at a profit. It is for the purpose of gaining profits that business men enter business. Now it is not a foregone conclusion that every man who embarks in a business of his own will make any profits at all. He may suffer a loss. The prices of the goods he buys as well as the prices of the goods he sells are subject to constant fluctuations. Moreover, it is not certain that he will be able to sell all the goods he buys or produces. If he is a grocer, he may find that after he has laid in his stock of goods the wholesale prices fall and other grocers buy more cheaply, and then undersell him, making it necessary for him to sell at lower prices than he expected to, or not to sell at all, which would be worse. Or he may find his competitors more clever than he in attracting customers, and be unable to sell enough goods to pay expenses. He may in fact, for these or other reasons, not only fail to earn any money for his own labor, but he may lose all the money he invests

in the business. So it is in all kinds of business enterprises — all are risky, but some are more risky than others. Every year in the United States many thousands of business men fail in their business ventures and frequently lose the savings of many years. Only those who have unusual business ability are likely to be highly successful in realizing profits. Others are more likely to suffer losses. Profits may, then, from this point of view, be defined as the reward for risk-taking and business ability, including initiative, imagination, courage, resourcefulness, judgment, and administrative capacity.

With this definition of profits before us, let us return to our consideration of our young grocer, and note whether or not we may call profits the $600 gain we arrived at. Does this $600 represent payment for the risk that he has taken and for his business ability? It will be remembered that he put his own savings into the venture as well as borrowed money. Furthermore, he applied his own labor. Assume that he had $3000 of his own to invest in the business, and that his labor was worth to his former employer $1200 a year. If we figure that he could have lent his money to others at six per cent a year, his income if he had kept his old position would have been $1200 plus the six per cent of $3000, or $1380 altogether, as against the $600 he enjoyed from his business. In other words, he would be $780 a year worse off in business than in his former position, which involved no risk. Obviously he has received no return for his risk and for his business ability. He could be said to have received such a return only if his net income from his business were larger than the income he would receive for his labor if he worked for others, plus the income he would receive from his savings, if he lent them to others at interest. It seems logical, therefore, to add to the other expenses of the business a fair rate of interest on his own capital invested, and a fair wage for his own labor. Some economists, although considering interest on the business man's own capital an expense, make no allowance for the value of his own labor, saying that it is too hard to estimate what a man might be earning if he were working for others. However, a rough estimate is always possible.

6. Profits calculated according to the economist's definition. In this book we shall assume that profits are calculated for a given

year as follows; using our grocery business again for purposes of illustration:

Money received for goods sold	$24,000
Value of property on hand at end of year	15,500
Total	$39,500
Value of property on hand at beginning of year.*	0
Money paid out for goods, labor, interest on borrowed money, etc	38,900
Interest on own capital invested	180
Fair wages for own labor	1,200
Total	$40,280
Profits, none	
Losses	$780

* This item is zero since in the assumed case the business has not yet been started. For the following year in this case the item would be $15,500.

By "business profits" thus calculated we mean the net gain a business man enjoys over and above the income he would have if he were not in business for himself. By "business losses" we mean the amount he loses because he is in business, instead of working for wages and lending his savings to others. Profits thus defined represent the inducement to go into business and to remain in business. Unless a business man realizes profits thus defined, he would do better to retire from business and work for wages, lending his capital to others. It does not pay a business man to stay in business if the income he realizes represents merely a fair rate of interest on his capital and fair wages for his labor, for the simple reason that such income is uncertain, and it is better to have an income of a given size certain than uncertain. He would do better, therefore, to exchange his uncertain business income for the more certain income that he would get by working for others and by putting his money out at interest.

The simple illustration we have used indicates the difficulties encountered in defining profits, and in calculating them after they are defined, but it does not indicate just how great these difficulties may be nor the complexity of the various problems presented. The subject of depreciation, for example, is a highly technical one, over which skilled accountants and engineers must puzzle their heads. It is no simple matter to determine how nearly a machine

or a building or a vehicle is worn out at the end of the first year, the second year, the third year, and so on, nor how much more cheaply a large stock of goods of many kinds could be bought on December 31st than at the various prices paid at the time of purchase. For more information on this subject and other subjects of like technical nature the reader is referred to books on accounting, engineering, and business management. It is our purpose here, not to instruct the reader on accounting methods, but merely to point out the nature of profits and the part they play in business organization. As defined above they may be called the mainspring of business, in the absence of which business operations would come to a standstill.

7. Individual proprietorship and its advantages. Most of the business operations in the United States are carried on under three main forms of business organization — the individual proprietorship, the partnership, and the corporation. Each of these as compared with the two others has certain advantages and disadvantages. Each form has a special field wherein it serves its purposes better than the other forms. Let us take the three forms up one by one and note their advantages and disadvantages.

The individual proprietorship, as the term implies, exists when a business is owned and controlled by one man. The main advantages of this form of business organization are the ease with which it can be set up, the freedom from dissension, the promptness with which important decisions of policy can be made, the direct relation between the business man's ability and industry and his reward, the ease with which the business can be brought to an end, and the comparative freedom from government interference. Provided he has sufficient capital to begin with, a man need only make up his mind what business he desires to engage in as an independent proprietor, and he is ready to begin operations. He buys what property he requires, employs what help he needs, and the business is under way. Once under way, he conducts his business as he sees fit, striving of course to please his customers, and to get along well with his employees. Whether to lay in a large stock of goods or to buy sparingly, to advertise or not to advertise, are matters he determines for himself — he has no partners with whom he must come to an agreement before these policies can be put into practice.

If his judgment is sound and his industry great, his reward is likely to be gratifying. If his judgment is poor and he is lazy, he will soon fail. If for any reason he desires to retire from the business, he disposes of his property as best he can, discharges his employees, and the thing is done. And he is little affected by government interference, except that he must pay his taxes and may not engage in unlawful practices. He requires no special permission from the State to begin business, except a license in some cases, needs to make no elaborate reports to state officials, except in matters of taxation, and is not bothered by legal complications when he desires to retire from business, except that he must pay his business debts.

8. Disadvantages of the individual proprietorship. On the other hand, the individual proprietorship has some serious disadvantages or limitations. Under our present industrial organization much capital is required to engage successfully in many branches of business — more than any one man is likely to have. To some extent the individual proprietor can make up his deficiency in capital by borrowing, but borrowing has its disadvantages in turn, since if the business man borrows freely he runs great danger of involving himself in absolute financial ruin — losing not only the money he has invested in the business, but any property he may have outside the business, such as his home or investments in government bonds. This is the result of the law of unlimited liability that applies to the individual proprietorship. The law does not distinguish between the proprietor and his business, and his business debts are also his personal debts. To illustrate this point: We assumed that our young grocer, having insufficient capital to run his grocery business, borrowed money to help pay for the building and his stock of goods. Eventually, he hoped to pay off this loan out of profits, or from the sale of the goods bought with the borrowed money. But if his business fails to prosper, and he is unable to pay interest on his loans when the interest is due, or is unable to pay off the loans themselves when they are due, and if he is unable to get the loans renewed, his creditors may force him to sell his business property for what it will bring — very likely at a great sacrifice. If the money received for the store building and equipment and stock of goods is not enough to satisfy the creditors, they may sue him for the balance, and to pay up he may be forced to sell his home and all

his other possessions, and turn the money over to them. The creditors are able to collect what is due them more easily if they have secured themselves against non-payment by mortgages on his property. One creditor may have a mortgage on his store building, and another a mortgage on his house. A mortgage is a deed or title to a piece of property, which becomes good only when the owner of the property fails to repay a loan to the holder of the mortgage when it is due, or the interest on such a loan when it is due. If our grocer has given to creditors such mortgages or conditional deeds on his store and house, they become the legal owners whenever he fails to pay them interest and principal when due.

Another disadvantage of the individual proprietorship is the danger involved of poor management. Everything depends on one man, and if that one man lacks good judgment on a few important occasions the business may be ruined. On many occasions two heads are better than one. Still another disadvantage arises from the fact that the welfare of the business depends upon one man's life and health. In case of his death or serious illness there may be no one at hand capable of carrying on, whereas in a business in which a number of men are associated, one man's death, or illness, may not have serious effects.

9. Advantages and disadvantages of the partnership. The partnership is a form of business organization devised to overcome the more serious limitations of the individual proprietorship — lack of capital and lack of managing ability. It is owned and controlled by two or more men each of whom has more or less voice in management. Usually the number of partners is not large, but nevertheless among them they are likely to have more capital and more managing ability than any one man would have alone. In a partnership each partner may be given charge of that department of the business which he is most capable of managing well, and in this way each department is likely to be managed better than if one man tried to do it all, or hired others with no personal interest in the business, beyond their salaries, to manage departments which he himself had not time to look after.

However, along with these advantages over the individual proprietorship, the partnership has also disadvantages. In the first place, it does not overcome the obstacle of unlimited liability, but

makes it worse. In the ordinary partnership each partner is legally liable for all the debts of the business, regardless of which partner incurred them. One incompetent, unscrupulous, or dishonest partner may, and frequently does, ruin all his associates, causing them to lose all the property they have, whether invested in the business or not. This is the main reason why the number of partners is generally small, few men caring to be associated with a large number of others on these terms. In the second place, the partnership loses to some extent the advantages of the individual proprietorship — the ease of beginning, the freedom from dissension, the promptness of decision, the direct relation between merit and reward, and the ease of dissolution. Partners must come to some agreement, when embarking in business, on the matters of the amount of capital each is to supply, the voice in management each is to have, the share of profits each is to enjoy, and on other important details. This usually involves a partnership agreement in the form of a legal instrument. Once in business together the partners may fall to quarreling and find themselves unable to agree promptly on important matters of business policy — and delay may be costly, even ruinous in some cases. Some may also shirk their duties, depending on the industry of the others to make the business pay. Finally, if one of the partners wants to retire from the business he may find it a very difficult matter. His property consists, perhaps, of a one-fifth interest in a factory building with its equipment and mass of raw materials, partly finished goods, and finished goods on hand but unsold. It is impossible to split off a fifth of this property, physically, from the rest, and sell it. He can sell only his interest in the whole. His partners may not be able and willing to buy his share, and he may be unable to find an outsider who is able and willing to buy it and who is also acceptable to his partners as a new associate in the business. There remains one alternative: the five partners may mutually agree to sell the whole business and divide the price received. If they cannot agree a very unpleasant situation arises.

10. The corporation and its stockholders.[1] The third form of business organization here to be discussed, the corporation, was

[1] This account of the corporation is very general and in the interest of lucidity omits from consideration various exceptions to the general rules stated.

devised to avoid the obvious defects of the individual proprietorship and the partnership. Incidentally, it not only avoided those defects, but gained some additional advantages. Modern business enterprises of many kinds require so much capital that they are often beyond the means of an individual proprietor or even of a considerable number of partners. It became necessary, therefore, in order to develop business properly, to invent some business device which would permit a large number of men to invest whatever sums they had available in the same enterprise, and to do so without undue risk. The corporation answers both these purposes, as will be explained. A small group of men who want to start a new enterprise requiring much capital, or to expand a business already operating, apply to the state government for a charter, which, if granted, permits them to carry on business under the corporate form — that is, by means of a corporation. The charter permits the corporation — which means in effect the men in control of the corporation — to sell shares of stock in the corporation. Shares of stock represent shares in ownership and control, in some respects like shares in a partnership, but with important differences.

(1) The persons who buy the shares of stock have the advantage of limited liability. That is, the most they can lose is the amount they pay for their shares of stock. If the business fails later, no matter how large its debts are, the shareholders, or stockholders, cannot be held liable for more than they have actually invested.[1]

(2) The number of shares of stock is very large, compared with the number of partners in a partnership, running sometimes up into the millions of shares, as in the case of the United States Steel Corporation or the General Motors Company, and a stockholder can buy just as many or just as few as his financial circumstances or his willingness to invest justifies. So some stockholders may own only one share, while others own many thousands.

(3) Since in most cases the stockholders are numerous and own an unequal number of shares, they cannot all participate in management directly nor do they all have an equal voice in management. Instead they elect a board of directors from among their own

[1] There are some exceptions to this rule: For example, stockholders in banks in the United States are subject to double liability. A case recently came to the writer's attention in which a bank stockholder learned of his double liability only after his bank failed.

number, each stockholder casting as many votes as he has shares of stock. The board of directors then decides upon matters of general business policy, and elects officers, such as president, vice-president, secretary, and treasurer, to carry out these policies and to attend to the routine duties of management.

(4) The stockholders share in the profits and losses of the corporation in proportion to the number of shares they own. For instance, if the corporation has available for distribution among its stockholders at the end of a year $10,000,000, and if it has 1,000,000 shares of stock outstanding, then each stockholder gets $10 for every share he owns. This $10 would be called a dividend on his stock. In a partnership, the partners may or may not share the gains in proportion to the amount each invested.

(5) When a stockholder wants to withdraw his capital from this particular business he simply sells his shares to some one else. He does not need the consent of his fellow stockholders — all he needs is a buyer, and if the corporation is well known there will be a ready market for the shares at a price that the financial condition of the corporation justifies at the time. The stocks of most of the corporations of any considerable importance in the United States are listed on the New York Stock Exchange, and this means that any stockholder can sell his stock practically at any time he desires. Incidentally, it may be remarked that anybody may become a stockholder in a going corporation at any time unless the stock is closely held by a few men, and does not need to wait until a new business is started before he can invest. All he needs to do is to buy some of the stock that others are willing to sell. How broad his opportunities are is indicated by the stock market reports in the daily papers.

11. **The preferred stockholder's position.** Up to this point we have discussed only one class of stock and one class of stockholders — the common stock and the common stockholders. Frequently, however, the common stockholders find it desirable to draw additional capital from investors who do not care to take as much risk of losing the money invested as the common stockholders take. Or, the common stockholders may wish to draw more capital from other investors without permitting them to share fully in the anticipated profits. To achieve one or both of these purposes, preferred stock is

offered for sale. The preferred stockholder is usually promised a definite rate of return on his investment, most commonly in the United States 7 per cent; that is, for every $100 he pays for stock he is promised a dividend of $7 a year. This dividend is not absolutely guaranteed, but if the corporation at the end of a year has made any money for its stockholders, the preferred stockholders have first claim on this income, and must be paid their full 7 per cent before the common stockholders get any dividends at all. Furthermore, it is generally provided that if the business fails, and any money is left after all debts are paid, the preferred stockholders must be paid back in full for the price of their shares before the common stockholders get anything. To offset these advantages, the preferred stockholders more often than not do not have the right to vote for directors, and do not get a dividend in excess of their stipulated 7 per cent, no matter how prosperous the business becomes.

12. Bonds and bondholders. The corporation often needs more capital than the stockholders are able and willing to supply. This it borrows. Some money it borrows from bankers who accept short-term promissory notes signed by the officials of the corporation as security for their loans. It may achieve practically the same purpose if it buys its raw materials, machinery, etc., on time, promising to pay in the near future. But in addition to all such short-term borrowing the corporation may also borrow large sums, promising repayment only after several years. Such borrowing is usually effected by means of a bond issue. For example, if the corporation wants to borrow $1,000,000 for twenty years, it may have 1000 bonds engraved, each of the denomination $1000, and sell these to investors. Various other denominations are used, but $1000 has been the most common. The persons who buy the bonds, the bondholders, differ from both the common and preferred stockholders in that they are not presumed to be risking the loss of the amount invested, but are presumably safeguarded against loss by means of a mortgage on the corporation's property, usually its land and buildings. Each bondholder does not receive a mortgage, but some one person or bank or trust company is appointed as trustee, and holds the mortgage in trust for all the bondholders. The bondholders are guaranteed a definite rate of interest on their bonds, and if this is not paid when due, or if the principal of the loan is not paid when it is

due, the trustee may sell the corporation's property for what it will bring in order to satisfy their claims.

Since the bondholders are protected against loss by their mortgage on the corporation's property, and are therefore assuming less risk than preferred stockholders, they usually receive a lower rate of return on their investment — such as 5 per cent or 6 per cent against the 7 per cent or 8 per cent of the preferred stockholder, and they get no more than the stipulated amount regardless of how large the profits of the business may be. If the common stockholders have great faith in the earning power of their corporation, they may issue bonds and not put out any preferred stock, since in that way they may get the additional capital required more cheaply. On the other hand, if they are not sure that they will have money available every year to pay interest on the bonds, they will do better to sell preferred stock instead, since the preferred stockholders must wait for their dividends until they are earned, whereas bondholders are in a position to insist upon prompt payment of their interest under penalty of foreclosure of their mortgage and forced sale of the stockholders' property. More often than not such a forced sale leaves the common stockholders little or nothing of their investment after all debts are paid.

13. Stocks and bonds further considered. In this account of the nature of the corporation and the methods it employs in raising funds for its business, only the more essential points have been discussed. Many details have been omitted for the sake of giving the student a clear idea of the main points. For a more detailed account of such facts as the double liability of stockholders of banking corporations, the various kinds of preferred stocks and bonds, the difference between par value and non-par value stocks, and the details of the charter, the reader is referred to books on corporation finance. If the reader has grasped the main points he understands that the corporation is a form of business organization that puts into the hands of a few enterprising and able men a larger amount of capital than they could raise in any other way; that in a general way it may be said that this capital may be drawn from three classes of investors, the first participating in all the risks and all the prospects of profits, the second having their risks and their gains somewhat more narrowly limited, and the third, the bondholders, being largely

safeguarded against loss, and having no chance for large gains. It should be added that the common stockholders of the worst-managed corporation have their liabilities limited to the amount invested, in most cases, and that the bondholders in even the best-managed corporation are not absolutely protected against loss. It will be understood, perhaps, that the common stock of a sound, well-managed corporation may represent a safer investment than the bonds of an ill-fated and badly mismanaged one. Finally, it should be added that under present conditions in the United States, with hundreds of thousands of corporations operating in many branches of industry, with many of them having not only common stock, preferred stock, and bonds outstanding, but having various classes of each of these groups of securities with differing degrees of safety and prospects for gain, the man with money to venture in business need never lack the opportunity. He has the choice of risking it all in one venture or scattering it among many, even if the sum be only a few hundred dollars, and he has a range of choice running all the way from practically absolute safety with a small return to the maximum of risk with the possibility of great profit.

14. Advantages and disadvantages of the corporation summarized. In the foregoing discussion we have already indicated various advantages of the corporation as a form of business organization. It will be helpful, however, to bring out the advantages more clearly. They may be discussed under three main heads:

(1) To the investor the corporation offers the opportunity of investing with ease any sum he may have available. Even if the sum is small, he may diversify his investment by buying a few shares of stock or small bonds in a number of corporations. He enjoys limited liability, does not need to bother with details of management, unless he is a large holder, or is chosen as director or general officer, and can usually dispose of his stocks or bonds readily if he wants to withdraw his capital.

(2) To the men in control of the corporation it offers greater opportunities for gain than they would otherwise enjoy. If they are able men the large capital at their disposal permits them to operate more effectively than they could with smaller capital. Naturally they do not retain all the gains for themselves, since they must share with the other stockholders, and must pay interest on the bonds if

any have been sold. But what capital of their own they have invested may earn large dividends. Furthermore, the men who control the corporation — a small group of large stockholders voting their shares of stock in common — may have themselves appointed as president, vice-president, secretary, and so on, at generous salaries, and this may be a perfectly legitimate procedure. They may gain also in other ways — not always, unfortunately, in honest ways. They may, for instance, take advantage of their inside information concerning the prosperity of the company, buy up additional shares of stock from less well-informed stockholders, and sell these shares at a profit after publishing a good earning statement. Or they may spread rumors or publish false reports indicating that the company is failing, and then buy up at a low price the shares of discouraged stockholders. In brief, the corporation offers these men opportunities for gain by both honest and dishonest methods.

(3) To the public at large the corporation brings various advantages. It encourages men to start new and venturesome enterprises, because they can do so without risking the loss of more than they invest. It encourages saving and investment by the ordinary man and this stimulates the accumulation of capital, which is a good thing. It permits able men to gain control of large business enterprises and operate them effectively to the end that more goods are produced with less labor than before. Finally, it opens the way for the working class to regain the ownership and control of the instruments of production. No poor man, and not even a moderately well-to-do mechanic, can hope under present industrial conditions to save enough out of his wages to operate a factory or a railroad for himself. But it would seem possible that the 2,000,000 railroad employees in the United States could save an average of $1000 each in a few years, and thus buy about one fifth of all the railroad stock in the country, or all the stock of one fifth of the railroads. In many business enterprises the employees are becoming important stockholders, and it may be that the corporation will eventually restore to the workmen the control of the means of production which was taken from them by the Industrial Revolution. In other words, the conflict between labor and capital may finally be ended by the merging of labor and capital in the hands of the same group of people.

Two disadvantages of the corporation should be noted. One of

these has already been indicated, and arises from the separation of ownership from management. The small group of men in control may own only a small part of the capital used, perhaps not even a considerable proportion of the common stock. They would then be operating mainly with other people's money. Not only could they then take advantage of the others in buying and selling the stock of the corporation as already shown, but they could with benefit to themselves engage in even more reprehensible practices costly to the other stockholders and the bondholders. They could, as officers, buy goods for more than they were worth, and sell their product at unduly low prices, and then secretly share in the gains of the men from whom they bought or to whom they sold. They could contrive to pay themselves salaries not justified by their business ability, and they could defraud the corporation in various other ways, often in such a way that they could not be punished by law. The second disadvantage is that the corporation may be used as an instrument of monopoly, through its power of gaining control over large aggregates of capital. This point will be discussed in more detail in a later chapter.

15. Do stockholders and bondholders receive interest or profit? One more point relating to business profits and business organization needs to be discussed in this chapter. This relates to the nature of the income which stockholders and bondholders receive from their corporation. Commonly the bondholders' return is considered as interest on the capital invested, while the dividends on stocks are spoken of more or less indiscriminately as interest or profit. Now from the point of view of economic theory it is important to maintain a distinction between interest and profit. Interest we may define as a return on capital. Later in a special chapter on interest we shall undertake to show why it may be more accurately defined as a premium paid for present goods in terms of future goods. At all events, it is not a return for risk or business ability. Profits, on the other hand, are a return for risk and business ability, and not a return for the use of capital. If we bear these facts in mind, we may conclude that investors who buy practically safe bonds and obtain a low return are receiving interest, and not profit. If, however, they buy bonds not well secured, so that they run a risk of losing their money and receive what is called a high rate of interest, they are re-

ceiving both interest and profit. That part of the return in excess of the rate that can be obtained from safe bonds is profit, and measures pretty accurately the degree of risk assumed by the bondholders. Likewise, the return of the preferred stockholder consists in part of interest and in part of profit, and the same is true of the return of the common stockholder. Investors should always bear in mind that one corporation need not ordinarily pay a higher rate of interest for loans than another, and if it promises a high rate of interest, it is in fact paying the prospective bondholders for the risk they are assuming of losing their capital. If the investment did not carry such risk, the corporation would be able to borrow at a lower rate. The investor who does not care to risk losing his principal should beware of buying bonds or stocks that yield a return twice as great as that yielded by United States government bonds. The excess above the yield of such bonds is likely to represent largely payment for risk, and when risk is paid for it is usually present. The corporation is not likely to be paying something for nothing. The investor may apply similar tests when buying stocks and bonds on the stock market. If the yield is high at the market price, it indicates that well-informed investors and speculators consider the investment risky. This subject will be further considered in our chapter on "Risk, Insurance, and Speculation."

EXERCISES

1. What is business? What is a business man? Is a clerk in a store a business man? Is a grocer? Is a farmer?
2. What are profits? How may a business man calculate his profits for a given year?
3. Name the three most important forms of business organization used in the United States. What are the advantages and the disadvantages of each as compared with the others?
4. A certain manufacturing corporation had outstanding $5,000,000 each in 5 per cent bonds, 7 per cent preferred stock, and common stock. After paying all operating expenses, taxes, insurance, and making due allowance for depreciation of its property, it had left available for interest on its bonds and dividends on its preferred and common stock $2,000,000 in the year 1920, but only $500,000 in the year 1921.

   Jones owned $100,000 of the bonds, $200,000 of the preferred stock, and $500,000 of the common stock. What income did he receive in 1920 from the bonds? from the preferred stock? from the common stock? What income did he receive from each class of securities in 1921?

REFERENCES

I

Bye, R. T. *Principles of Economics*, chapter 9.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 6.
Hamilton, W. H. *Current Economic Problems*, sections 91–94.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 59–61 and 64–66.
Taussig, F. W. *Principles of Economics* (1921 edition), chapter 6.

II

Haney, L. H. *Business Organization and Combination.*
Lincoln, E. E. *Applied Business Finance.*
Stockder, A. H. *Business Ownership Organization.*

CHAPTER V

DEMAND AND SUPPLY AND MARKET PRICE

1. Every one vitally interested in prices. Practically every one is vitally interested in prices, because under present industrial conditions the welfare, even the life, of almost every one depends upon goods which are bought and sold for a price. All persons except dependents are constantly buying and selling goods, either material objects or services. How many goods a man may enjoy depends largely upon the prices he gets for the things he sells and the prices he pays for the things he buys. Obviously, if he sells his goods at low prices and buys the goods he wants at high prices, he can buy fewer goods than if he sells at high prices and buys at low prices. It should be emphasized always that he is more concerned with the relative height of the prices received and paid than with absolute prices. It does a man little good to have a very high salary if the cost of living is relatively higher, and he can live well on a low salary if prices of goods that he wants are exceedingly low. It is not primarily a question of how much money he receives for the things he sells, but of how many goods he can buy with the money received. This rather obvious truth is apparently sometimes overlooked by persons who are dissatisfied with the prices they receive for their goods, and who advocate legislation to raise the price of their product — legislation which will incidentally tend to raise the prices of the things they want to buy just as surely as the prices of the goods they sell. Projects for raising prices by law are constantly creeping into our political campaigns, and indicate by the intensity of feeling aroused how deeply people are concerned with prices.

2. Business men more concerned with prices than others. Business men are even more deeply concerned with prices than are people generally. Business men's incomes are gained by buying and selling at a profit. A wage-earner's buying and selling is more simple. He sells his labor, and he buys what goods he wants to consume, striving to save a little for the future, and so does a salaried man, such as a bookkeeper, teacher, preacher, or government clerk. But a business man buys not only consumers' goods,

but great quantities of producers' goods, which he hopes to sell at a profit. It is the difference between the prices he pays for his producers' goods and the prices he gets for the product that constitutes mainly the income with which he may buy goods for consumption. Perhaps we should remind the reader again of the distinction between producers' goods and consumers' goods — the distinction being based upon the purpose for which the goods are bought rather than upon the nature of the goods. Producers' goods are goods bought for business purposes. Consumers' goods are goods bought for consumption for pleasure or gratification of want.

3. Why more producers' goods than consumers' goods are bought and sold. The aggregate of the prices paid for producers' goods in a month or year greatly exceeds the amount paid for consumers' goods, as may readily be shown. Most goods in the process of production pass successively through the hands of several business men, and are thus bought several times over as producers' goods, but naturally are bought only once by the final consumer. For example, the farmer grows cotton and sells it to the local dealer, who sells it perhaps to a wholesale dealer who stores it in a warehouse. There it is bought and sold several times possibly by speculators, and finally sold again to a yarn manufacturer, who sells his product to the cotton cloth producer, who sells his cloth to a wholesaler, who sells it to a retailer, who finally sells to the consumer. Possibly the cloth may be sold by the producer to a shirt manufacturer, adding one more deal, or even other business transactions may occur before the final product reaches the consumer. Incidentally labor and other producers' goods are being merged with the cotton through all these processes of business, and the consumer finally pays for all the labor, cotton, and other goods represented by the cloth or shirt he buys. But the price he pays is much less than the aggregate of all the prices paid by the various business men, although it must naturally exceed the prices paid by the final business man in the series, whose prices must in turn exceed the prices paid by the men from whom he bought and so on back to the beginning; that is, this must be so if all business men in the series have made profits. It is obvious that the last figure in such a series as $2, $3, $4, $5, etc., is greater than any other figure in the series, but is only a fraction of the sum of all the rest.

Not only are prices of producers' goods more important than the price of consumers' goods from the mere point of total amount, but they are more important to the economist from the point of view of the number and complexity of the problems they present. What these problems are and how they are related to the prices of producers' goods more directly than to prices of consumers' goods will appear more clearly in subsequent chapters than can be explained in brief compass here.

4. Price changes and profits. Most persons are interested not only in the prices of goods they buy compared with the prices of goods they sell at the same time, but in the prices of the goods they buy or sell compared with the prices of the same goods later. That is, they are interested in changes in prices. This is particularly true of business men, who, as has been stated, are engaged in buying to sell at a profit. As explained in Chapter IV, business ventures are risky, and not all business men succeed in making profits, or even in escaping losses. However, those who are willing to accept the risks and who have the requisite business ability may make gains exceeding by far the income they could earn in any other way. This income, or rather that part of it that represents excess above what they could earn by working for others and lending their capital on safe security, we call profit, which we have defined as reward for risk-taking and business ability. Naturally it follows that the largest profits go to the business man who combines the greatest risk with the greatest business ability. Now more than any other one thing, what makes business risky is the constant fluctuation of prices. Always the prices of the goods the business man buys and the goods he sells are going up and down. Some goods fluctuate in price more than others, and a business dealing in raw materials and products which fluctuate violently in price is of course more risky than one handling goods comparatively stable in price. These fluctuations in prices make it difficult for that business man who is unable to foresee them fairly well to escape serious losses. Generally business men buy before they sell, and what they pay for their producers' goods depends largely upon what price they expect to get for their product. If the general expectation is that by the time the product is ready for sale the price will be high, competition among buyers forces up the price of the producers' goods needed to make

the product. A sudden fall in the price of the product may bring the price below the cost of production — the aggregate prices paid for the producers' goods used to make it. Then the business man suffers a loss. On the other hand, a business man may think that at the existing prices of the producers' goods and the finished product profit is impossible and close down his plant. A sudden rise in the price of the product finds him with none to sell and the opportunity for profit gone. If the business man contracts for the sale of the product before buying the materials and labor from which he makes it, then a sudden rise in the price of these materials and labor may occur, and again involve him in loss. If he strives to avoid risk altogether by contracting for the sale first and promising delivery only if he can produce below a certain cost, he will find that a difficult matter to arrange. And if his business is such that he can contract out of all risk, then his profits will be narrow, and will represent merely payment for administrative ability, or what might be called wages of management. The business man, however, who is not only willing to assume all the risk going with fluctuating prices, but is able to foresee price changes much better than his competitors, will make great profits — the very risks that ruin his less able and courageous competitors giving him the opportunity to make a fortune. These matters will be discussed further in later chapters. It is merely intended here to show the importance of price changes to the business man, who does most of the buying and selling in the world to-day, and the foregoing paragraphs are intended to serve mainly as an introduction to the subject of price changes to be discussed below.

5. Relation between demand, supply, and market price generally not well understood. The subject of changes in prices is not very well understood by most people because few take the trouble to analyze carefully the causes of changes in prices. A stock expression has long served as a substitute for thought on the subject — the expression that "price depends upon demand and supply." Frequently men use this expression who have no clearly defined idea of what they mean by either supply and demand or price, and who can be thrown into great mental confusion if asked to define their terms. One more question and their confusion may become complete: Is it not just as true that demand and supply depend upon price, and

that this explanation of price and price changes represents mere reasoning in a circle, leading nowhere? However, it is not intended here to imply that the statement that price depends upon demand and supply is untrue. It is true so far as it goes, but it does not constitute an explanation of price changes on the basis of which one may safely embark in business enterprises or determine government policies. An explanation of the relation between supply and demand and prices and other factors that influence the three cannot be compressed into a sentence of a half-dozen words, and not even into a half-dozen chapters, of reasonable length. There are too many factors to be taken into consideration, and too many varying conditions to permit an explanation in a few words. Moreover, for all to whom thinking is a painful process there can be no painless economic theory — no one can understand an explanation of price determination who is unwilling to take the trouble of following through a chain of reasoning. In the discussion of prices that follows an attempt will be made to state the theory as simply as may be and to inflict no unnecessary pain upon the reader.

6. Price, supply, and demand defined. A logical beginning for a discussion of the relation between demand, supply, and price is a definition for each of the terms. This is the more necessary because the terms "supply" and "demand" are often used loosely and may mean any one of a number of things. In this book we will understand by "price," the amount of money actually paid for an article on the market; for example, the price of wheat in Chicago, or the price of coke at Connellsville, on a given day. In the United States at the present time prices are understood to be gold prices: that is, a dollar means 23.22 grains of pure gold. By "supply" we will understand the quantity offered for sale at the market price, and by "demand" the quantity that will be bought at the market price. It should be emphasized that by supply we do not understand the total quantity of a commodity in existence, nor even the total quantity offered for sale, but only that part of the total stock actually offered at the market price that prevails at the particular time and place for that particular commodity. For example, a farmer might have 3000 bushels of wheat on hand, of which he offered for sale 1000 bushels at $1.25 and a second 1000 at $1.50, reserving the rest for future sale. If the market price were $1.25 on

that day, he would supply only 1000. The rest of his wheat would not be a part of the supply. By demand it should be noted, too, we do not mean the total quantity desired, but the quantity desired at the market price. If the market price of wheat is $1.25 and buyers in the aggregate are found for 1,000,000 bushels at that price, then the demand is 1,000,000. The writer does not maintain here that the foregoing definitions of demand and supply are the only acceptable definitions and that any other concept of demand and supply is wrong, but he has concluded after careful consideration that when this meaning is attached to the terms of supply and demand, discussion is facilitated and gains precision.[1] And in economic theory precision of statement is a paramount consideration. Misunderstanding and conflicting statements grow largely out of loose use of terms — the apparent meaning changing from chapter to chapter.

7. Why a decrease in price causes an increase in quantity demanded. Having now defined supply as the quantity offered for sale at the market price and demand as the quantity demanded at the market price, let us note next the causes that tend to increase or decrease supply and demand, and the relation between supply and demand and price. It is convenient to begin by noting the effect of a change of price upon demand. Every one is more or less familiar with the fact that when the market price of an article decreases the quantity that will be bought tends to increase, and that when the price increases the quantity that will be bought tends to decrease. Expressed more briefly, the statement becomes that the lower the price the greater the demand. The reader will understand that there are exceptions to this rule, but nevertheless it remains true that a lowering in price does tend to cause an increase in demand — an increase, that is, in the quantity that will be bought. Merchants recognize this fact when they advertise bargain sales. Henry Ford recognized it when he made successive reductions in the price of his cars to increase the number of sales. Just why a decrease in price causes an increase in demand is not so clearly understood. A concrete example will explain this relation between price and demand. For purposes of illustrating the relation between

[1] For a different definition of supply and of demand see Fairchild, Furniss, and Buck, *Elementary Economics*, chapters 11 and 12.

price and demand no commodity will serve better than eggs, the price of which fluctuates every year from a high level in November, December, and January to a low level in April, May, and June. As the price falls the quantity bought per month or week rises. Why? Because as the price falls more and more people will buy eggs, and, furthermore, each buyer will tend to buy more and more eggs up to the point where each has all he wants. Again we may ask, why? Because at a very high price only the rich or the spendthrifts will buy eggs — let us say, at $1 or more a dozen. At a somewhat lower price people with smaller incomes and more thrifty people will begin to buy some eggs from week to week, but will not buy all they would like to eat. As the price goes lower and lower, people with smaller and smaller incomes, and more and more thrifty people, will begin to feel that at these prices they can afford to buy eggs. Finally, if the price goes very low even the very poor people will buy some eggs, and all but the very poor will buy all that they care to eat.

8. The law of diminishing utility. The facts that some people have larger incomes than others and that some are less thrifty than others, and that those who are richer and those who are less thrifty will buy at higher prices and more freely than those with smaller incomes and those who are more thrifty need no further discussion. It will be enough to add that the poor greatly exceed the rich in numbers and that when they are buying the demand will be much greater than when merely the rich are buying, and that even the thriftless poor cannot buy very freely at a very high price — at the most they cannot in the long run spend much more than their income. But the fact that the same class will buy more eggs at a low price than at a high price rests upon an important principle of economics, called the "law of diminishing utility," and this deserves attention.

By utility, it will be remembered, we mean the capacity to satisfy want. The more intensely we desire an object the greater is its utility to us. Now it happens that as we add to the number of units that we have of any commodity, the less and less we care for each successive unit, until finally we have all we want and view with indifference an additional unit. For example, a boy might be very fond of wheat cakes for breakfast and devour the first one with great relish. A second and third might seem to afford equal satisfaction.

But with the fourth or fifth the boy would feel his appetite perceptibly slackening. After one or two more he would feel fairly well contented, but might try just one more, only to leave part of it on his plate unconsumed because he had had enough. An additional cake for the time being would be of no interest to him. If the boy were in an introspective mood and fell to meditating on his experience, he would conclude that each successive cake had less want-satisfying power than the preceding one. And if he followed up this train of thought he would conclude that what held true of hot cakes probably held true of everything else, and his conclusion would be sound. The universal principle here illustrated economists refer to as the law of diminishing utility.

9. Diminishing utility and limited incomes related to price and demand. Bearing in mind the law of diminishing utility we are in a position to understand why the same group of persons will buy more eggs or other articles at a low price than at a high price, particularly if they have limited incomes. In buying consumers' goods people with incomes so small that they cannot buy as much of everything as they want tend to buy those things which they think will yield them the greatest satisfaction. How much they will pay for any additional unit of any article then depends upon how much they want it, how much they want other things, and how much money they have.

If the boy in our example of the wheat cakes had been the son of a very rich man and accustomed to have his pockets always full of money so that he could always buy all that he wanted of everything with little regard to price, and if he had been eating his cakes in a restaurant, paying for them one by one as he ate them, he might cheerfully have paid any price asked and the same price for each successive cake until he had all he wanted — let us say seven cakes at ten cents each. If, however, he had been a poor boy who could not buy as much of everything as he wanted, he would have been inclined, perhaps, to eat only two cakes at ten cents each, although still hungry after the last one, in order to save part of his money to buy something else. If the waiter had tried to induce him to eat more cakes by offering additional cakes at lower prices he might have eaten a third, at seven cents, and perhaps a fourth at five cents, and a fifth at three cents. Now most of the people in the

world are in the financial condition of the poor boy, who could not buy all he wanted of everything. Even the richest men cannot buy everything that they want if they want great quantities of exceedingly expensive things, such as palaces, yachts, diamonds. But of such ordinary things as bread, meat, eggs, shoes, and suits of clothes the very rich buy all that they want with little regard to the price. Taking all these things into consideration we understand more clearly why the number of eggs that can be sold or will be bought increases rapidly as the price falls. At a high price, say around a dollar a dozen, only the rich buy all they want, the moderately rich buy less freely, the well-to-do very sparingly, the poor and the very poor not at all. Successive reductions in price induce people with smaller and smaller incomes to buy more freely, until, if the price goes low enough, even the very poor may buy all they want.

10. An assumed demand schedule for eggs. The effect of differences in income, differences in thrift, and diminishing utility upon the quantity of eggs that will be demanded at various prices may be clearly seen in Table IV, representing the demand for eggs at various prices in a supposititious community of 10 rich, 50 moderately rich, 100 well-to-do, 300 poor, and 200 very poor families, referred to respectively in the table as class A, B, C, D, E. Such a table showing the various quantities that would be bought at various prices may be called a demand schedule, or schedule of demands.

TABLE IV. DEMAND SCHEDULE FOR EGGS

At a Price of	Dozens Bought by Each Family of Each Class					Total Quantity Bought
	10 A families	50 B families	100 C families	300 D families	200 E families	
$.90	5	2	1	0	0	250
.80	5	3	1	0	0	300
.70	5	4	2	0	0	450
.60	5	5	3	1	0	900
.50	5	5	4	2	0	1300
.40	5	5	5	3	1	1900
.30	5	5	5	4	2	2400
.20	5	5	5	5	3	2900

We assume in this table that the rich families buy all the eggs at $.90 that they care to eat at any price, five dozen a week, and buy no more even at the low price of $.20; that the moderately rich, the B class, buy only two dozen at $.90 and gradually increase the quantity bought until at a price of $.60 they buy all they care for; that the well-to-do, the C class, buy only one dozen at $.90, and do not buy all they want until the price drops to $.40; that the poor, the D class, buy none above $.60 and do not buy all they want until the price drops to $.20; and that the very poor begin buying only at $.40 cents, and even at $.20 restrict themselves to three dozen a week. Of course the people of any community cannot all be placed in five such distinct groups according to incomes, and the number of dozens of eggs each family buys is affected by other factors than income and price — such as thrift, number in the family, natural fondness for eggs, preferences for other food products, etc. Nevertheless the price does affect the number of buyers and the quantity bought by various buyers as we have shown in the table. Our table over-simplifies the problem, but presents the principles as they actually operate in practice.

11. **Effect of price upon supply of perishable commodities.** Having noted how and why a change in market price affects the demand, let us next consider the effect of market price upon supply — the quantity offered for sale at the market price. This is not so simple as the effect of market price upon demand. Whereas in general a change in price affects the quantity demanded, a change in price does not always affect the quantity offered for sale. For example, in a certain isolated community truck-growers may have strawberries ripening ready for market at the rate of 10,000 boxes a day. It is obvious that changes in the market price of berries will not affect the rate at which the berries ripen. It is obvious also that, except for a small quantity which the growers use themselves, unsold strawberries, a highly perishable product, will be a total loss in a day or two. The growers will then be willing to offer for sale at the market price practically all that ripen from day to day, even if the price does little more than cover cost of picking and hauling to market, let us say ten cents a box. A higher price will bring out no larger supply, since no more can be sold than are ripe. Whether the price be ten cents or fifty cents a box, the supply — the quantity offered

for sale — remains the same. However, the future supply of strawberries may be affected by the present price. If the price the growers receive throughout the season is very low, they will be likely to grow fewer berries the next year than they would grow if they received a higher price.

12. **Effect of price upon supply of non-perishable commodities.** In the case of non-perishable commodities, such as wheat or cotton, the present market price affects not only the future supply, but the present supply. Wheat-growers are not always under the necessity of selling all the wheat they have grown as soon as it is threshed. Unless they are pressed for ready money to pay urgent bills, they may withhold a part of the crop from the market for some time. Farmers have a tendency to hold their wheat for a certain price, whatever they think it ought to sell for under the prevailing conditions. Some are willing to sell for less than others, perhaps under the force of necessity. Some will sell part of their crop at one price, but hold the rest for a higher price. So for various reasons the amount of wheat offered for sale by farmers varies with the market price: with every rise in price they tend to offer wheat more freely, and with every fall to hold back more from the market. If, however, a rise of a few cents a bushel leads a farmer to anticipate a further rise, he may be inclined to hold his wheat when otherwise he would have sold it, and, on the other hand, a fall of a few cents may cause him to sell hurriedly for fear of a still further fall in price. But the general tendency that outweighs such cases is to sell more freely at the higher price than at the lower.

The average market price for wheat that prevails during one year also, of course, affects the total quantity of wheat that will be produced the next year, although it cannot affect the quantity of wheat already in existence. When the price of wheat is high, farmers sow wheat more freely the next season; when it is unduly low, they reduce their acreage. Similar considerations hold true of all non-perishable commodities. The market price does not affect the quantity already produced, but it does affect the proportion of the quantity in existence offered for sale from day to day, and the quantity that will be produced and offered for sale in the future. It should be added that from the producer's point of view the price is unduly low when it fails to cover cost of production, and high when it yields a good profit.

13. Speculation and demand and supply. Market price also affects demand and supply through the operations of speculators. Speculators in commodities are persons who buy producers' goods, not for the ordinary purposes of manufacturing and merchandising, but merely to hold for a short time on the chance of selling at a profit. If speculators have reason to believe that the present market price is lower than the future market price, they buy, expecting to sell later at a profit. If they think that the market price is higher now than it will be later, they make contracts to deliver later a certain quantity of goods at the present price, hoping to buy the goods before delivery is due at a lower price than they have received. Naturally when they buy they increase the demand, and when they sell they increase the supply, and thus exercise a stabilizing influence on prices — preventing prices from falling as low or rising as high as they otherwise might. Further discussion of speculation is reserved for a later chapter.

For "References" for this chapter see end of Chapter VI.

CHAPTER VI

DEMAND AND SUPPLY AND MARKET PRICE (*continued*)

1. Effect of market price on demand and supply summarized. In the preceding chapter we undertook to show how and why changes in market prices affect demand and supply — that is, the quantity that buyers will buy and the quantity that sellers will offer for sale. It was demonstrated that the demand increases when market price decreases, and decreases when market price increases, for three fundamental reasons — differences in income, differences in thrift, and the law of diminishing utility. Incidentally it was pointed out that if we all had unlimited incomes and could buy all we wanted of everything regardless of price, changes in market price would not affect demand. With respect to supply, or the quantity offered for sale, we found that present market price does not materially affect the present supply of highly perishable commodities, such as strawberries, which will be marketed at any price that will cover cost of picking and transportation to market, but that a high market price during one season tends to bring out a larger supply the next season than a low market price, a high price being defined as one that yields the seller a good profit, and a low price as one that yields little or no profit, or even fails to cover cost of production. In the case of nonperishable commodities, such as wheat, cotton, or copper, the present market price affects both the present supply and the future supply. If the price is considered unduly low, sellers tend to withhold part of the stock already produced from the market and to produce less in the future. If the price is higher, they sell more freely from the stock on hand and produce more freely in the future. Such, in brief, are the effects of market price on demand and supply, as discussed in the preceding chapter. Let us now consider the effects on market price of changes in supply and demand.

2. Other causes of changes in supply. Just as a change in market price may cause a change in supply, so a change in supply may cause, and is very likely to cause, a change in market price. Changes in supply may be the effect of changes in market price, or they may occur independently of market price. There are various

causes of changes in supply other than changes in market price. In the case of agricultural products, for example, the quantity offered for sale during one season is little affected by the market prices prevailing during that season. Practically all cotton grown in any year will be sold by the growers before the next crop comes on the market, regardless of the prices prevailing during the twelve months. Changes in market price from day to day and from week to week affect the rate at which the cotton is offered for sale, bringing out a little more one week, and a little less the next, perhaps, but not the total amount supplied during the year, which is usually practically all that has been grown. The total amount that has been grown depends in part upon the market price of the past season, but also upon the conditions favorable or unfavorable to a large yield per acre. A high price in one year may cause more acres to be planted the next year, but the total crop harvested depends as much upon the weather and the boll weevil as upon the number of acres planted. and over the weather and the boll weevil market price has no influence. The supply of cotton offered for sale may increase year after year as the result of the growth of population in the cotton-producing states; of the use of labor-saving devices permitting one man to cultivate more acres; of the scientific selection of seed to increase the yield per acre; or of the systematic destruction of insect pests. Similar causes operate to affect the supply of other agricultural products.

In other industries also, as manufacturing and mining, supply may vary regardless of market price. New inventions and new processes, additions to the supply of capital and labor, improvements in transportation and other marketing facilities may increase enormously the quantity produced and offered for sale. Thus over a period of months or years supply may increase in spite of a decrease in market price, and not merely as a result of an increase in market price.

3. **Other causes of changes in demand.** Just as changes in supply may result from other causes than changes in market price, so may changes in demand result from other causes, such as the growth of population, larger incomes, fads and fashions, advertising, wars, etc. In 1800, when the population of the United States was only about 5,000,000, the domestic demand for wheat for human consumption

would not have exceeded 50,000,000 bushels a year, no matter how low the price, because on the average human beings do not consume as much as ten bushels of wheat. In 1920, when the population was more than 105,000,000, ten times 50,000,000 bushels could have been sold at a very high price, since 500,000,000 bushels would have amounted to less than five bushels per capita, or less than our people are accustomed to consume. During the last few years the demand for barbers has increased through the bobbed-hair movement. The use of the safety razor somewhat earlier had tended to check the increase in the demand for barbers. Unless business men are suffering sadly from errors in judgment, advertising increases the demand for their products. There is a story of a safety razor manufacturer who concluded that he could sell more razors at $5 each than at $1 each, provided he spent part of the extra $4 in advertising — and because his reasoning was sound he made a fortune. Much of the advertising by competing business men, however, results merely in an exchange of customers rather than an increase in the total demand and the total quantity of goods sold. Wars often cause an enormous expansion in demand for many commodities, particularly when the civilians adopt the slogan of "business as usual" and try to continue buying their usual quantities of goods in addition to the goods provided for war purposes. There is no need to continue this enumeration of causes affecting demand. The examples given are sufficient to illustrate the principle that changes in demand may occur which are not the result of changes in price.

4. The principle of diminishing vendibility. Having noted that some changes in supply and demand are the result of changes in price, and that other changes in supply and demand are the result of other causes, let us note the effect of such changes in supply and demand upon market price. It will be convenient to begin with an examination of the effect of an increase in supply upon market price. We have two questions to consider. How does an increase in supply affect price? And why does it so affect price? To answer the first is easy. An increase in supply tends to cause market price to fall. The only thing that would prevent such a fall in price would be a simultaneous and independent increase in demand. Why an increase in supply causes a fall in price requires explanation in some detail — an explanation closely related to the reasons why a fall in

price tends to increase the quantity demanded, as discussed in the preceding chapter.

This explanation involves a discussion of the principle of diminishing vendibility and of the equation of supply and demand. The principle of diminishing vendibility is illustrated in Table IV, on page 95, called "Demand Schedule For Eggs," which we have used to illustrate the effect of price upon demand. That table shows not only how many eggs will be demanded or bought at various market prices, but also the number of eggs that can be sold — the number that can be sold being the same obviously as the number that will be bought. At $.90 a dozen only 250 dozen eggs could be sold, because at that high price only the richest class would buy all the eggs they wanted. The moderately rich and the merely well-to-do would buy sparingly, and the poor and the very poor would not buy at all. With a decrease in price the moderately rich and the well-to-do classes would buy more freely, and when the price fell low enough the poor and the very poor would begin to buy, at first sparingly and then more and more freely with further decreases in price, until finally, at a price of $.20 a dozen, 2900 dozen eggs a week could be sold as against only 250 dozen at $.90. Now with such a demand schedule how would an increase in supply affect price?

Suppose that during January the farmers who were supplying our imaginary egg market brought forward only 250 dozen eggs because their hens were not laying freely. With a demand schedule as given in Table IV, they could sell the whole supply to people who were willing to pay $.90 a dozen rather than do without eggs, Class A, B, and C families taking respectively five, two and one dozen eggs each. The demand for eggs at that price would be just equal to the supply — we should have an equation of demand and supply. Of course the farmers could offer to take less, say $.80, but at that price the fifty Class B families would want three dozen eggs a week, thus bringing the demand up to 300 dozen, or fifty dozen more than the supply. If these fifty families actually got three dozen, then some of the other families willing to pay the higher price of $.90 would not get all they wanted. There would then be an egg shortage, and so many inquiries for eggs that the farmers might be expected to ask the higher price which would equalize demand and supply. It is always safe to assume that sellers generally will

charge all they can get, and will not knowingly offer goods for sale for less than the buyers are willing to pay.

Suppose now that during February hens were laying more freely and our farmers found themselves with 450 dozen eggs a week to dispose of in our market. If they still asked $.90, they could sell only 250 dozen as before. At $.80 they could sell a few more, but still not the total supply. To get rid of the 450 dozen they would have to offer them at a price that would tempt Class B families to buy four dozen, and Class C families to buy two dozen. Our demand schedule shows that price to be $.70. At that price demand and supply would again be equal. The question may now be asked, Why could not the farmers sell part of the supply to buyers willing to pay $.90, and offer only the rest of the supply to those unwilling or unable to pay more than $.70 or $.80? The answer is, that under certain favorable circumstances this might be done. But usually it is not possible in the long run to charge some buyers more than others in the same market, and even if possible not very good business, because of the ill feeling that it is likely to arouse on the part of the buyers charged the higher price. Let us note what effect on price further increases in supply would have. In March, let us say, the farmers might be bringing in 900 dozen a week, and to dispose of these they would have to reduce the price to $.60, or low enough to tempt the moderately rich to buy all they cared to eat, the well-to-do to buy a third dozen a week, and the poor families to begin buying at the rate of one dozen a week. Finally, when the egg-laying season reached its height a little later, the farmers would offer for sale 2900 dozen a week, and in order to sell the total quantity would be compelled to reduce the price to $.20. The principle here illustrated that an increase in the quantity offered for sale tends to cause a decrease in the market price may be referred to as the "law of diminishing vendibility."

5. **Why marginal vendibility sets the price of the whole supply.** It is obvious that sellers, if they are to sell a larger quantity, must offer the additional units at a concession in price that will tempt buyers who were buying before to buy more, or to tempt new buyers into the market who were unable or unwilling to buy at the higher price. In other words, sellers must take what buyers are able and willing to pay. It is not so obvious why sellers generally must

offer the whole supply at the lower price instead of merely the addition to the old supply. It has already been stated that usually it is not possible to charge some buyers more than others in the same market, and even if possible, not good business. Note why this statement is true. To illustrate let us assume that in our egg market 2900 dozen eggs have been offered for sale. Why could the farmers not charge the Class A families $.90, a price which they are willing to pay rather than go without their five dozen a week, the Class B families $.60, the Class C families $.40, and make the low price of $.20 only to the poor families that would not buy eggs at the higher prices? There are several reasons why they could not. In the first place, they would have to make an agreement with one another not to sell for less than the agreed-upon prices to the various families, and then agree further as to how many eggs each would be permitted to sell at $.90 to the rich, and how many each would sell at $.20 to the poor. Naturally each seller would prefer to supply the rich, and none would care to supply the poor. Without such an agreement the high price to the rich could not be maintained, since any seller would prefer selling to the rich at, let us say $.21, to selling to the poor at $.20. If such an agreement were made among the sellers it would be a conspiracy of the sellers against the buyers and the latter would soon be aware of it. The rich would resent the discrimination and would try to buy eggs elsewhere. And the poor would be quite willing to resell the eggs that they bought at $.20 to the rich for much less than $.90 — perhaps at $.25. For these reasons the whole supply of like articles is usually sold at the same price to rich and poor alike. Doctors manage to charge their rich patients more than the poor partly because in this case the rich are willing to pay more in order that the poor may pay less for necessary medical service, but partly also because the poor cannot resell the service to the rich. The rich man may resent paying $5000 to have his appendix removed while the poor man pays only $100, but at any rate he cannot buy the poor man's operation. But in the case of vendible commodities the rich may buy from the poor if the poor are offered lower prices by the sellers. It is therefore generally true that there is only one price for any particular commodity in the same market at the same time, and this is the price that is low enough to tempt the least able or least eager buyer to buy his least desired unit,

it being understood that this buyer must be tempted to buy this unit if the whole quantity offered for sale is to be sold. This price may be said to represent or measure the marginal vendibility[1] of the supply. Marginal vendibility may then be said to determine the price at which any given supply can be sold. In our example of the egg market, when the supply is 450 dozen, marginal vendibility, and therefore market price, is $.70; when the supply rises to 900 dozen, marginal vendibility and market price fall to $.60, the price that the least able and eager buyers are able and willing to pay for their first dozen, and in this case also the price the next class of buyers is willing to pay for their third and least desired dozen. When the supply rises to 2900 dozen, marginal vendibility and market price fall to $.20, the price that the least able and eager buyers are willing to pay for their third and least desired dozen.

6. How a change in demand affects price. Let us turn now from considering the effect upon market price of an increase in supply to consider the effect upon market price of an increase in demand. Let us suppose that at a certain time the demand for eggs at various prices was as represented in Table IV, on page 95, and that later, because of a scarcity of meat or other substitute foods, or because of a growth in population, or because of an increase in prosperity of the former population, or for some other reason, more eggs were demanded than before at the various market prices shown. In other words, suppose a new demand schedule took the place of the old, as indicated in Table V. Such an increase in demand — an increase in the quantity demanded at all the old prices — is sometimes called an "increase in the schedule sense" to distinguish it from an increase in the quantity demanded that results merely from a fall in price, which may be called an "increase in demand in the market sense."

The reader should observe that under the old demand schedule the quantity demanded increases as the price falls, and likewise under the new demand schedule, but when we compare the new demand schedule with the old we note that at each respective price the new demand exceeds the old. In other words, reading the

[1] The phrase "marginal vendibility" was apparently coined by Professor F. W. Taussig and appears in his discussion of value in his *Principles of Economics*, 1921 edition.

TABLE V. AN INCREASE IN DEMAND IN THE SCHEDULE SENSE

PRICE PER DOZEN	THE OLD DEMAND SCHEDULE	THE NEW DEMAND SCHEDULE
$.90	250 dozen	300 dozen
.80	300 "	450 "
.70	450 "	900 "
.60	900 "	1300 "
.50	1300 "	1900 "
.40	1900 "	2400 "
.30	2400 "	2900 "
.20	2900 "	3500 "

quantities demanded downward in the table we see increases in demand resulting from decreases in price, but reading from left to right the quantities demanded, we see increases in demand not resulting from changes in price, but independent of such changes. Our present task is to determine what effect on price such changes in demand will have. Let us assume that the supply is 300 dozen. In accordance with principles already discussed the market price would be $.80 under the old demand schedule and $.90 under the new and larger demand. With a supply of 450 dozen the market price under the old demand schedule would be $.70, and under the new demand schedule, $.80, and so on. We may conclude, therefore, that an increase in demand resulting from causes other than a decrease in price, will cause an increase in price unless accompanied by an increase in supply. A corollary of this proposition is that a decrease in demand would cause a decrease in price.

7. Relation between demand, supply, and market price summarized. We may now summarize our conclusions concerning the relation between supply, demand, and market price, as follows:

(1) An increase in supply causes a fall in price, and a fall in price in turn causes an increase in demand, and conversely a decrease in supply causes a rise in price, and a rise in price in turn causes a decrease in demand.
(2) An increase in demand causes a rise in price, and a decrease in demand causes a fall in price.
(3) A rise or fall in price does not materially affect the present supply of highly perishable goods, which are likely to be offered for sale at any price.
(4) A rise in price tends to increase the present supply of non-perishable

goods, by inducing owners to sell more freely of the stock on hand, and it tends also to increase the future supply of both perishable and non-perishable goods, by inducing producers to expand production. A fall in price has the reverse effect.

(5) But all of these propositions must be understood to be subject to qualifications, which we may lump together in the phrase, other things being equal, or remaining the same. In all cases we mean by demand the quantity demanded at the market price, and by supply the quantity offered for sale at the market price.

The cause and effect relations between supply and demand and market price, and other factors than price affecting supply and demand, may be strung together like this to illustrate the points here discussed:

Other factors than price affect supply — supply affects price — price affects demand.

Other factors than price affect demand — demand affects price — price affects supply.

Writers sometimes say that supply and demand mutually affect each other through price, and this is true, just as illustrated above. But if there were no other independent factors causing changes in supply and demand, then supply and demand would never change, and market price likewise would never change. Supply and demand would be in the position of two trains in Kansas after the legislature passed a law regulating train movement in the interest of safety. This law provided that where two railroads crossed, a train approaching such a crossing should come to a dead stop, and if two trains on the two respective tracks approached the crossing at the same time, both should stop, and neither should proceed until the other had passed by. It is obvious that rigorous enforcement of this law would have held both trains at the crossing indefinitely. Fortunately, the law was not enforced strictly according to the letter.

What the factors are other than price that affect supply and demand has been discussed. It remains only to point out that whenever such factors do affect supply the effect is transmitted through supply to price, and through price to demand, and whenever such factors affect demand the effect is transmitted through demand and price to supply. It is the function of market price, therefore, to equalize supply and demand. Because of the various factors that affect both supply and demand independently of one another, market

price for many commodities is kept dancing up and down in a surprising and confusing fashion. When the supply for any reason becomes larger than the demand the market price must drop to restore the equilibrium, and when the supply becomes smaller than the demand the price must rise.

8. Use of diagrams or charts explained. The interaction of supply, demand, and price can be shown very neatly by diagrams or graphs, but more often than not students of elementary economics are unfamiliar with the kinds of diagrams used and fail utterly to grasp the simple ideas presented, so that the diagram, instead of presenting the subject more clearly, serves no purpose but to confuse the reader. We shall undertake, therefore, to explain the meaning of the various lines on our charts, so that they may be helpful to the student, as intended, rather than merely a cause of confusion.

Students who have studied maps in geographies should have no trouble in understanding the simple charts shown in the following sections of this chapter, since the fundamental principles used are those employed in maps. A map of the United States has two dimensions, and so have our charts. Running east and west across the map are parallel lines, called "parallels." These are numbered to represent the number of degrees they are north of the Equator, from which distances north and south are measured in units of degrees, or fractions of degrees. Running at right angles to the parallels are other lines called "meridians" numbered according to the number of degrees they are west of Greenwich, England, from which distances on maps are measured east and west. The parallels and meridians are useful in locating places on the map.

On our charts appear parallel lines running up and down, and others from left to right, at right angles to the vertical lines. These lines are called "coördinate" lines by persons accustomed to using charts. They may be numbered to represent certain distances from the bottom of the chart and certain distances from the left-hand side. Since, however, we are going to use them to illustrate market prices and supply and demand we will let them represent prices and quantities supplied or demanded, as shown in Figure 1. In this figure the line $0x$ is the line from which prices are measured on the chart, equal distances above that line representing equal prices. The first coördinate line above the base line is the $1 line and includes all

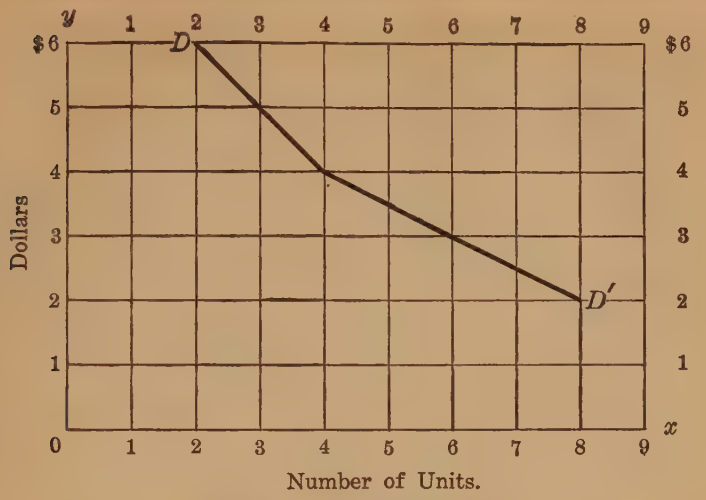


FIGURE 1. A DEMAND CURVE

points in the chart representing the price of $1; the second line is the $2 line, the third the $3 line, and so on. The line 0*y* at the left side of the chart is the line from which quantities demanded are measured. The first coördinate line to the right of the line 0*y* is the one-unit line, and includes all points on the chart representing a demand of one unit; the second line is the two-unit line; the third, the three-unit line, and so on. The line *DD′* may be called a demand curve. It might also be called a price curve, or a marginal vendibility curve. It shows the various quantities that would be demanded at various prices, as follows:

Units demanded	*At a price of*
2	$6
3	5
4	4
6	3
8	2

In other words, it represents a demand schedule. The smallest quantity shown by the curve is two units demanded at $6; the greatest quantity, eight units demanded at $2. The demand curve is based on the demand schedule and is constructed as follows: Locate on the chart the various points that represent the successive quantities demanded at the corresponding successive prices, as

shown in the demand schedule. For example, two units are demanded at $6. The only point on the chart that represents two units and $6 is the intersection of the two-unit line with the $6-line. Our next point is the intersection of the three-unit line with the $5-line, and so on. All the points having been located on the chart, it remains only to connect them with a line to have a demand curve showing the various quantities demanded at various prices. Once understood, these charts will seem much simpler than this description.

9. **Continuous and discontinuous demands.** The student will understand that we need not draw coördinate lines for every dollar and for every unit. The price lines may represent intervals of $5, or $100, or merely a fraction of a dollar, perhaps one cent. The unit lines may represent hundreds, thousands, or millions, according to the size of the figures of demand and supply with which one is dealing. If we are dealing in large numbers, we may assume that the demand curve shows various intervening quantities demanded at various intervening prices in addition to those definitely located at the points determining our curve. For example, if the prices shown in Figure 1 represented hundreds of dollars, and the units, thousands of pounds, then we might assume that, since the curve runs diagonally downward from the $600-line to the $500-line, and shows 2000 pounds demanded at $600 and 3000 pounds at $500, 2500 would be demanded at $550, or 2750 pounds at $525, etc. In other words, we might assume that *every* point on the line represented a certain demand at a certain price, and not merely the points located at the intersections of our coördinate lines. The conditions of demand for some commodities are of such a nature that every trifling change in price will cause a corresponding change in demand, and for such commodities a demand curve might represent approximately every possible one of the thousands of quantities that would be demanded at thousands of prices. Such a demand schedule is said to represent a continuous demand, in contrast with a discontinuous demand such as that represented in our little demand schedule on page 109, where the changes in price and demand are few and abrupt.

Just as we may draw demand curves to represent demand schedules, so we may draw supply curves to represent supply schedules, or the various quantities that will be offered for sale at various prices.

10. Doubling of supply and demand in the schedule sense. To show now how demand and supply schedules — the various quantities demanded or supplied at various prices — may be graphically presented by demand and supply curves, and to show graphically the interaction of supply, demand, and price, we will present a supply schedule and a demand schedule representing a certain condition of supply and demand, and another demand schedule showing a demand twice as great as before, and another supply schedule showing a supply twice as great as before, and then draw supply curves and demand curves representing these schedules of supply and demand. For the sake of making the curves easy to draw and discuss, we will use very simple assumed supply and demand schedules. They will serve to illustrate the principles involved better than more complex schedules made up of actual market statistics. In Table VI we give, then, five columns of figures — market price, old demand schedule, old supply schedule, new demand schedule, and new supply schedule.

TABLE VI. DEMAND AND SUPPLY SCHEDULES ILLUSTRATING DOUBLING OF DEMAND AND SUPPLY IN THE SCHEDULE SENSE

MARKET PRICE	OLD DEMAND SCHEDULE	OLD SUPPLY SCHEDULE	NEW DEMAND SCHEDULE	NEW SUPPLY SCHEDULE
$10	7,000	1,000	14,000	2,000
20	6,000	2,000	12,000	4,000
30	5,000	3,000	10,000	6,000
40	4,000	4,000	8,000	8,000
50	3,000	5,000	6,000	10,000
60	2,000	6,000	4,000	12,000
70	1,000	7,000	2,000	14,000

It will be observed that we are assuming that our supply in this case is affected by price — increasing as price increases; in other words, that we are dealing with a commodity which can be withheld from the market, temporarily at least, if the price is unsatisfactory. If we consider first the old demand schedule, we see that with every increase in price demand decreases. This decrease in demand is the result of the rise in price. If we compare with this demand schedule the new demand schedule, we observe that at any given price twice as much is demanded as before. This represents a doubling of demand not the effect of price, and may be expected

to cause a rise in price. Likewise if we consider first the old supply schedule, we see it increasing with every rise in price — the increase in supply is a result of the rise in price. If we compare the new supply schedule with the old, we find it twice as great at any given market price. This increase in supply is not the result of market price, and may be expected to cause a fall in market price. According to our old supply schedule and our old demand schedule, market price would be $40, because at that price demand and supply are equal. Any higher price would be impossible because supply would exceed demand; any lower price would be impossible because demand would exceed supply. If now demand doubles, supply remaining the same, market price must rise, because at the old price of $40, demand is 8000 units and supply only 4000. Market price to equalize demand and supply must rise to between $50 and $60, since at $50 demand exceeds supply and at $60 supply exceeds demand. If now we assume the old demand schedule and a doubled supply schedule, we find that market price must fall, since at $40, the old price, supply exceeds demand. Price will fall to between $20 and $30, since at $20 demand will exceed supply and at $30 supply will exceed demand. If supply and demand both double in the schedule sense, price will remain $40, since at that price supply and demand will be equal, 8000 being demanded and 8000 being supplied.

11. Demand and supply curves showing doubling of demand and supply. In the following diagrams will be presented, first the old supply schedule together with both the old and the new demand schedules, to represent graphically the relation between demand and supply and price, and the effect on price of an increase in demand; and, second, the old demand schedule together with both the old and the new supply schedules, to show the effect on market price of an increase in supply.

In Figure 2 the old demand schedule is represented by the line DD, the old supply schedule by the line SS, and the new demand schedule by the line $D'D'$. The supply curve SS and the old demand curve DD intersect at the intersection of the $40-line and the 4000-unit line. This indicates graphically that the market price is $40, because that price equalizes demand and supply at 4000 units. The new demand curve is above and to the right of the old demand curve. It shows that at the old price of $40, 8000 would be demanded, and

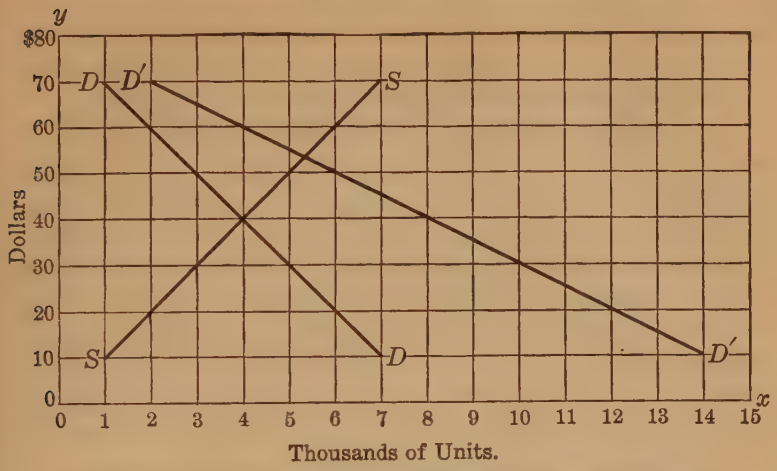


FIGURE 2. A DOUBLING OF DEMAND (IN THE SCHEDULE SENSE)

DD = old demand schedule
D′D′ = new demand schedule
SS = supply schedule

that the old quantity of 4000, the old supply, would be demanded at $60. In other words, it shows that the same quantity as before would be demanded at a higher price, and that at the old price a larger quantity would be demanded than before. With demand greater than supply the first effect would be a rise in price, perhaps up to $60. This would draw out a larger supply, and drive price downward again until demand and supply were equalized again at a little above $50, at which price something over 5000 units would be demanded and supplied, as shown by the intersection of the old supply curve *SS* and the new demand curve *D′D′*. To repeat in connection with this diagram what has been said before, the increase in demand represented by the new demand curve occurred, not as a result of a change in price, but itself caused a rise in price. This rise in price caused an increase in supply.

In Figure 3 the old demand schedule is represented by the line *DD*, the old supply schedule by the line *SS*, and the new supply schedule by the line *S′S′*. As in Figure 2 the old market price is $40, which equalizes the old supply and demand at 4000 units. The new supply curve representing a doubling of supply is below and to the right of the old supply curve. It indicates that at the old market price of $40, 8000 units would be supplied instead of only 4000, and

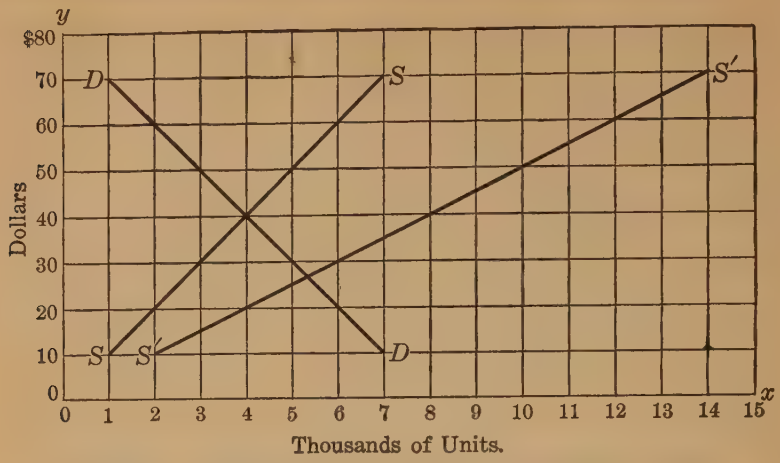


FIGURE 3. A DOUBLING OF SUPPLY (IN THE SCHEDULE SENSE)

SS = old supply schedule
S′S′ = new supply schedule
DD = demand

that 4000 units would be supplied at $20 instead of $40 as before. In other words, it indicates that at the same price more would be supplied than before, and that the same quantity would be supplied at a lower price than before. The first effect of this increase in supply would be a fall in price, since supply now exceeds demand. Price might fall as low as $20. But this low price would stimulate demand which would increase, since more than 4000 would be demanded at the low price of $20, and this would drive price upward again, until supply and demand were once more equalized by a price a little above $25. At this price something more than 5000 units would be demanded and supplied, as indicated by the intersection of the old demand curve with the new supply curve.

12. **Elastic and inelastic demand.** In the case of some commodities the demand is very sensitive to price changes. A relatively small change in price may cause a relatively great increase or decrease in the quantity demanded. Such a demand is called an "elastic demand." In other cases the demand changes relatively little with changes in price, and such a demand is called an "inelastic demand."

It is commonly held that the demand for necessaries of life — the cheaper grades of food and clothing, for example — is inelastic.

This is because even the poorest people must have food if they are to live and will buy enough to survive on at any price within the reach of their incomes. But there is little difference between the quantity of cheap food a man requires to sustain life and the quantity he will eat if he can have all he wants. This holds true not only of the cheapest kinds of food, but of more expensive food which the mass of the people in a prosperous country are accustomed to buy, and which they will not readily do without, such as wheat in the form of flour or white bread in the United States. The average American consumes in some form or other about six bushels of wheat per year, and insists upon having about that much at any reasonable price, even at as high a price as $3 or more a bushel. But much more than six bushels he would not use at any price, even as low as $.50, or less. Therefore, the demand for wheat in the United States will be about six bushels per capita, or something more than 600,000,000 a year at a moderate price of perhaps $1.50 a bushel, but raising the price to $3 will not greatly reduce the quantity demanded, nor will reducing the price greatly increase the quantity demanded. Small changes in supply, therefore, tend to cause sharp fluctuations in the price of wheat, as one may note at almost any time by observing changes in market quotations upon rumors of crop damage, or other rumors concerning the supply.

But in the case of luxuries the demand tends to be elastic. These the mass of the people can do without, but will buy if the price is reduced so that they can afford to buy. For instance, poor men do not have to have automobiles, and even if they are inclined to think they must have them, they cannot afford to buy them at $5000, or even at $1000. Successive reductions in the prices of automobiles, however, bring them within the buying power of successively larger numbers of people with smaller and smaller incomes. At $500, perhaps twenty times as many cars will be demanded as at $5000, although a similar reduction in the price of wheat from $5 to $.50 might not increase the demand for wheat by more than one hundred per cent.

It will be understood, of course, that the terms "elastic" and "inelastic" as here used are relative terms only. There is no such thing as an absolutely inelastic demand, a demand that remains the same in quantity regardless of price — whether the price be one

cent or one billion dollars per unit. It has been suggested that the boundary line between demands we call elastic and those we call inelastic should be fixed at that degree of elasticity called "unity." By this is meant a demand just elastic enough so that as price falls the quantity demanded increases at such a rate that the total value of the quantity sold remains the same, thus:

At $12,	one unit demanded —	and the total value of sales $12
At 6,	two units demanded	ditto
At 4,	three units demanded	ditto
At 2,	six units demanded	ditto
At 1,	twelve units demanded	ditto

This is called "unity of elasticity of demand" because at half the former price two times the former quantity is sold, at one third the former price, three times the former quantity is sold, etc. But

$$\tfrac{1}{2} \times 2 = 1$$
$$\tfrac{1}{3} \times 3 = 1$$
$$\tfrac{1}{4} \times 4 = 1$$

and so on.

In accordance with this idea, a demand more elastic than that here indicated would be called elastic, and one less elastic would be called inelastic. This may be graphically depicted as in Figure 4.

Differences in elasticity of demand are indicated by differences in the slopes of the three demand curves shown in Figure 4, the

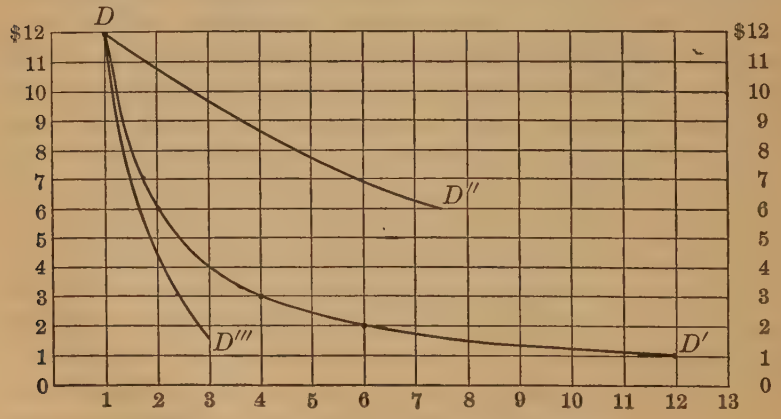


FIGURE 4. ELASTIC AND INELASTIC DEMAND

DD' = unity of elasticity of demand
DD'' = elastic demand
DD''' = inelastic demand

steepest slope representing the most inelastic demand. Such differences in demand are of considerable practical importance and we must refer to them later. But too much stress must not be laid on the idea of unity of elasticity of demand as described above. It is of small practical importance.

EXERCISES

1. Ask several of your friends what is meant by demand and by supply. Compare the replies with one another. What meaning have you yourself in the past applied to the term "demand"? to the term "supply"? How are the terms defined in Chapter V?

   Note: When custom sanctions more than one meaning for some term, such as "supply" or "demand," no one definition is necessarily more correct than another. But in argument and discussion one should always be sure that he understands in what sense the term is used.
2. Bearing in mind that "demand" is defined in this book as the quantity demanded at the market price, how do changes in market price affect the demand for eggs? Why?
3. Bearing in mind that "supply" is defined in this book as the quantity offered for sale at the market price; how do changes in the market price affect the supply of strawberries? the supply of wheat? Why?
4. Summarize the effect of changes in market price upon demand and supply of perishable commodities; of durable commodities.
5. Name some factors other than price that affect demand; that affect supply.
6. State the law of diminishing utility; the law of diminishing vendibility. Are the two related?
7. What is a demand schedule? a supply schedule? Draw up two demand schedules, the one showing demand twice as great as the other. Draw up two supply schedules, the one showing supply twice as great as the other. Represent these two demand and supply schedules graphically on a chart.

   Suggestion: Base these imaginary schedules on the assumption that every increase in price is accompanied by an increase in supply and by a decrease in demand.
8. Explain why marginal vendibility tends to set the price for the whole supply of any commodity instead of merely determining the price of the least desired unit.
9. What is meant by elastic demand? by inelastic demand? Could farmers in the aggregate greatly increase the demand for wheat by offering it at a much lower price? Could automobile manufacturers greatly increase the demand for automobiles by offering them at a much lower price? Why or why not?

REFERENCES

Edie, L. D. *Economics: Principles and Problems*, chapters 8 and 9.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 11–16.
Marshall, Alfred. *Principles of Economics* (8th edition), book III, chapters 2–6.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 104 and 105.
Taylor, F. M. *Principles of Economics* (1918 edition), chapters 14–16.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 8–10.

CHAPTER VII

DEMAND SCHEDULES FOR PRODUCERS' GOODS

1. Law of diminishing utility does not apply to producers' goods. In Chapter VI it was shown how an increase in the supply of any consumers' good tends to cause a fall in its price through the operation of the law of diminishing vendibility. It was pointed out that this law was based upon the principle of diminishing utility and upon differences in income and thrift of consumers. Now a moment's reflection will show that the principle or law of diminishing utility does not operate in the case of producers' goods, since producers' goods are bought to satisfy no desire except to sell at a profit, and this desire is not subject to the same steady diminution that is apparent in the case of the desire for consumers' goods. Furthermore, the quantity of producers' goods a business man buys does not depend directly upon his income and thrift, and neither does the price which he is able and willing to pay for a given quantity of such goods. The spendthrift consumer buys consumers' goods more freely than the thrifty man, but the spendthrift business man does not necessarily buy more or fewer producers' goods than the prudent business man. A wealthy business man is likely to buy consumers' goods more freely and at higher prices than a poor business man, but he may not be willing to buy more producers' goods nor to pay a higher price for them than the poor business man. It is obvious, therefore, that the principles which account for the law of diminishing vendibility in the case of consumers' goods do not apply to that large quantity of goods bought by business men for business purposes, greatly exceeding the total quantity of consumers' goods bought and sold. Nevertheless it is a commonly accepted fact that the law of diminishing vendibility does hold for producers' goods. The greater the quantity thrown on the market, the lower the market price tends to be. In other words, there is a demand schedule for producers' goods, just as there is for consumers' goods. In this chapter an attempt will be made to account for the operation of the law of diminishing vendibility of producers' goods.

2. Prices of producers' goods depend upon the prices of the pro-

ducts. Fundamentally we may say that the prices of producers' goods depend upon the prices of the products made from them or by their aid. What the consumer ultimately will pay for their products determines the prices that business men are able and willing to pay for any kind of producers' goods. A simple illustration of the general principle here stated is afforded by the wholesale and retail prices of eggs. Eggs sold by retailers to customers are consumers' goods, and the prices that the consumers pay are determined in accordance with the principles discussed in the preceding chapters. Eggs bought by the retailer and the wholesaler are producers' goods, bought to be sold at a profit, not for direct satisfaction of wants. What the wholesaler can afford to pay for them depends upon what he can get for them from the retailer, and what the retailer can afford to pay depends upon what he can get for them from the consumer. Neither the wholesaler nor the retailer will pay as much as he may reasonably expect to get. Each will try to buy at a price so far below the expected selling price that the difference will cover all other expenses involved and leave something over in the way of profit. If he pays much less, however, than he may reasonably expect to get, he will find his competitors in the egg market outbidding him, and he may have no eggs at all to sell.

Since an increase in the supply of eggs offered for sale to consumers will drive down marginal vendibility, or price, it is apparent that this fall in price will in turn force down the price that retailers can pay, and this will force down the price that wholesalers can pay to the country dealers or shippers from whom they buy. Thus diminishing vendibility of the finished consumers' good operates to cause diminishing vendibility of the producers' good from which it has emerged. This reasoning may seem to some readers to be inverted, since it is common business practice for retailers to pay the current wholesale price and mark this price up enough to cover their other expenses of conducting business and their profit, so that it appears that what they get for the eggs depends upon what they pay, and not *vice versa*. Fundamentally, however, the principle holds true that what the retailer or any other business man pays for his producers' goods depends upon what he gets or expects to get for what he sells. Wholesale egg dealers merely seem to control price because they realize the necessity of cutting prices before the

retailers — they know when stocks are accumulating, unsold, because the price is too high to induce consumers to buy the total supply coming on the market. When retailers do not sell enough eggs to consumers and buy enough from the wholesalers to clear the latter's stocks at the current price, the wholesalers simply accept the situation and offer eggs at lower prices. Retailers then buy at the lower prices, sell more cheaply and in larger quantity, and in turn buy more freely and clear up the accumulated stocks.

Suppose that retailers agreed to buy all the eggs offered by wholesalers. Could they then pay the wholesale price and mark up their price enough to yield a profit? There would be no difficulty in marking up the price, but the eggs, if offered in larger quantities than the consumers wanted at the market price, would accumulate in the retail stores. There would then be nothing for the retailers to do but sell the eggs at a loss, let them accumulate unsold, or refuse to buy all that were offered. They could not long continue the first or second policy, and the third would lead to an offer on the part of wholesalers to reduce the price. Thus our reasoning leads to the conclusion already stated — the prices of producers' goods depend upon the prices of consumers' goods. To express this truth economists often say that the value of producers' goods is a derived value, or that the utility of producers' goods is a derived utility, derived from the value or utility of consumers' goods.

The fact that the retailer's customers pay the price asked, but limit the quantity purchased, and that the retailer in turn pays the wholesale price without much question, but limits the quantity bought, tends to obscure the fundamental principle that the consumer is the ultimate arbiter of price. But to one who has grasped the principle of diminishing vendibility and understands the relation between demand and supply and market price discussed in the preceding chapter, it is obvious that consumers are forcing a recession in price just as truly, when they refuse to buy all that is offered under competitive conditions at the market price, as when they refuse to buy at all at the market price, but higgle for lower prices.

3. Diminishing vendibility illustrated by statistics from the Chicago egg market. In Chapter V an imaginary egg market and an imaginary demand schedule were used to illustrate the principle of

TABLE VII. WHOLESALE EGG PRICES AT CHICAGO — AVERAGE BY MONTHS, 1917–21 *

MONTH	AVERAGE NUMBER OF CASES BOUGHT PER MONTH	AVERAGE PRICE PER DOZEN
December	83,000	$.61
November	100,000	.57
January	114,000	.56
October	186,000	.49
February	195,000	.44
September	267,000	.42
August	341,000	.38
July	454,000	.36
March	477,000	.35
June	695,000	.33
May	905,000	.34
April	914,000	.34

* Statistics adapted from *Year-Book* of U.S. Department of Agriculture, 1922.

diminishing vendibility for consumers' goods. In Table VII statistics drawn from the wholesale egg market in Chicago have been arranged to constitute a real demand schedule and to illustrate the principle of diminishing vendibility for producers' goods, eggs bought on the wholesale market being producers' goods. If it is true, as has been stated, that an increase in the supply of eggs will force a recession in the retail price, and that this will force a recession in the wholesale price, then we should expect to find the wholesale price of eggs falling as the quantity thrown on the market increases. Now this is just what we do find in Table VII. In order to show clearly the relation between an increase in supply and the price at which the increased supply can be disposed of, the market statistics have been arranged in the order of the quantity bought per month from lowest to highest instead of in chronological order from January to December. The table shows that the average number of cases of eggs thrown on the market during the five years 1917–21 varied from 83,000 cases in December to 914,000 cases in April. The reader may note by comparing the quantities thrown on the market with the corresponding average price during the month that with two exceptions every increase in quantity was accompanied by a decrease in price. For example, the 83,000 cases of December brought $.61, the 100,000 cases of November brought $.57, the 114,000 cases of January brought $.56, and so down the

columns of quantities and prices until the 695,000 cases of June brought only $.33. In May and April we find the exceptions to the rule, the 905,000 cases of May and the 914,000 cases of April were sold at an average price of $.34 per dozen as against the lower price of $.33 brought by the smaller number sold in June. This happens to be the sort of exception that proves the rule. In April and May many eggs are bought for cold-storage purposes, so that the demand for immediate consumption is supplemented by the demand for cold storage. Were it not for this fact the prices in April and May would doubtless have been lower than the price in June, and Table VII would represent a perfect illustration of a demand schedule showing that with substantial increases in the quantity thrown on the market stocks can be moved only by recessions in price, or, in other words, that the lower the price the more will be demanded and the more can be sold.

The question might be raised, Why are eleven times as many eggs thrown on the market and sold in April at $.34 as are offered for sale in December at the higher price of $.61? Ought not the higher price to bring to the market more eggs than the lower price? The answer is, of course, that the various quantities of eggs offered for sale by producers during the various months of the year vary, not in accordance with the prices obtainable, but depend upon the habits of hens, which apparently proceed to lay about eleven times as many eggs in April as in December absolutely regardless of the probable effect on market price. Moreover, eggs are a perishable product, and if not sold at once for whatever they will bring may become a total loss, or worse!

4. The maximum total a producer can pay for all his producers' goods is the value of his product. The relation between the prices that business men are able and willing to pay for their producers' goods and the prices of their products requires further consideration and more careful analysis. The fundamental relation has already been indicated — what the business man can pay for his producers' goods depends upon the price of his product. But this statement, together with the simple illustration of wholesale egg prices already given, serves merely as an introduction to a rather involved explanation attempting to account for all the facts.

To begin with, it should be understood that the term "producers'

goods," as used by the present writer, includes all things that business men buy or use for business purposes, including land, labor, raw materials, factory buildings, machinery, and so on, and even loans. The aggregate of the prices a business man pays for all his producers' goods then represents his total costs of production. The various producers' goods he buys may be called his cost items. The term "producers' goods" is quite commonly used in a more narrow sense to embrace only raw materials, building materials, or the like.

We may say that the maximum any business man is able and willing to pay for all his producers' goods is the total amount that he receives for the product made from them. If he pays more than that, he suffers a loss and will not be inclined to stay in business if he can get out conveniently without suffering a larger loss. If he does stay in business and keeps on losing money, he will eventually be forced out by bankruptcy.

But the average business man buys, not merely one class of producers' goods, but many. Every manufacturer, for instance, must buy or rent land, buildings, machinery, tools, raw materials, supplies, and labor. Of each of these classes of goods (or services) he may buy several varieties. Of labor he may buy skilled, semiskilled, clerical, and professional. Among his skilled workers may be carpenters, bricklayers, and machinists. The maximum he can pay for all these in the aggregate is clear, but how much for the raw material, the land, the clerks, the carpenters?

Most business men who remain in business do not pay the maximum that they are able and willing to pay if necessary. In other words, their costs remain below the price of their product. What determines then how much below the maximum they will pay in the aggregate for all their producers' goods, and how much for each particular class? Our present task is to offer an explanation that will answer these two questions. This explanation is not a simple one and the reader will need to attend closely to follow the reasoning involved.

5. Determining the maximum price a producer can pay for any one class of producers' goods. We may begin by stating that the maximum amount a business man is able and willing to pay for his total supply of any one class of producers' goods required for his product is the difference between the total value of his product and

the total amount paid for all other classes of goods used. In other words, it is the difference between what he gets for the product and his other expenses or costs of production. If he pays more than that difference, he pays out more than he gets for the product, and thus suffers a loss. As we shall point out later in more detail, he may temporarily pay more and suffer a loss rather than close down his plant if closing down involves a greater loss, but he cannot indefinitely keep on paying more, since no one can indefinitely keep on suffering a loss and stay in business. All this is quite obvious, and, one might say, axiomatic. But it is on the basis of this simple principle that we may by a process of reasoning find an explanation of the determination of prices of producers' goods.

In order to make the discussion more easy to follow, the principles involved will be illustrated by a concrete example based on actual industrial conditions. We will draw our example from the beet-sugar manufacturing industry, and for the sake of convenience in exposition we will not strive for exactness in details, but will make certain assumptions relating to the various cost items encountered in that industry. Our assumptions of cost, however, will not differ materially from actual conditions as they existed in the beet-sugar industry in the United States before the World War, and do not in any degree affect the validity of the reasoning based upon them.

We will assume that a certain beet-sugar producer was manufacturing 10,000 tons of sugar a year, and selling it at a price of $120 a ton, and that his costs of production per year were as follows:

Item	Cost per Year
Sugar beets	$640,000
Labor — including his own	100,000
Fuel	50,000
Other supplies	30,000
Marketing expenses	70,000
Repairs, depreciation, taxes, insurance	150,000
Interest on borrowed capital	30,000
Fair rate of return on owned capital	30,000
Total costs	$1,100,000
Total value of product	1,200,000
Profit	100,000

The cost items as given in our example represent, not all that our

sugar manufacturer could have paid or what he would have been willing to pay rather than go without the required goods, but what he actually did pay, market prices being as they were. He realized enough for his product to pay all costs of production, including a fair return for his own labor and his own capital employed, and $100,000 more, which represented his profit, or the return for his risk-taking and business ability. In other words, it is assumed that he made $100,000 a year more by being in business for himself than he would have received had he put his own capital into risk-free investment and had worked for others at a stated salary, representing his worth as an employee.

Now let us consider how much he would have been able and willing to pay for any cost item rather than go without it. Assuming that he would not produce at a loss, then the maximum he would have paid for the beets required to produce 10,000 tons of sugar is $740,000. This represents the difference between the value of the product, $1,200,000, and all other costs, namely, $460,000. It represents also the price he actually did pay, $640,000, plus his profits of $100,000. In other words, if he had paid $100,000 more for his beets than he did pay, he would have made no profit and suffered no loss.

Assuming that the quantity of beets bought was 80,000 tons and the price paid was $8 a ton, then he could have paid $1.25 a ton more than he did pay, or $9.25, without suffering a loss on his year's business. This assumes all other costs to be as shown in the table. Since one cannot make beet sugar without sugar beets it is safe to assume that this manufacturer would have paid anything up to $9.25 a ton for his beets rather than go without them.

Similarly we can calculate what he would have been willing to pay for any other cost item necessary for his operations rather than go without it. If the labor expense of $100,000 represented, let us say, 20,000 days of labor at an average wage of $5 a day, then he would have been able and willing to pay wages twice as high, or an average of $10 a day. This one hundred per cent increase in wages would have wiped out his profit, but it would not have involved him in loss. If among his workmen there had been five absolutely indispensable whom he was actually paying in the aggregate $15,000 a year, he would have been able and willing to pay them $115,000 a

year rather than lose them. Thus we might take up each of the cost items — sugar beets, labor, fuel, other supplies, marketing expenses, repairs, interest on borrowed capital. For any one class of goods or services represented by these various items he could have paid $100,000 more than he did pay and still suffer no loss on the year's operations, and for any one he would have been willing to pay nearly if not quite $100,000 more than he did, rather than go without it, since to have dispensed with any indispensable item would have meant cessation of operations and loss of all profit. Obviously he could not have paid $100,000 extra for each of these cost items, but only for any one, the others remaining the same.

6. A producer's maximum price for any one class of producers' goods varies with his profits, and with the prices of its complementary producers' goods. How much more than the current market price a beet-sugar producer could pay for sugar beets depends upon how large his profits are. In the foregoing example he could have paid $1.25 a ton more than the market price because his profits equaled $1.25 a ton. If his profits had been twice as great he could have paid $2.50 more; if three times as great, $3.75 more. If he had been making no profit at all, the market price of $8 a ton would have represented his maximum price. Anything that increased his profits would by so much increase the amount he could pay for beets, other things remaining the same. Anything that cut down his profits would cut down the price he could pay. A decrease of $10 a ton in the price of sugar would wipe out his profits and make a price of $8 the maximum he could pay for beets. Any increase or decrease, in the cost of any other class of producers' goods, which we may call complementary costs, would diminish or increase the price he could pay for beets. An increase in wages, for instance, would reduce his profits and cut down what he could afford to pay for beets. A producer who could borrow money at a lower rate of interest, or hire labor at lower wages, or buy fuel at a lower price, or sell his sugar at a higher price, or who could produce more sugar with a given amount of beets, labor, capital, etc., could afford to pay more for beets than others. In so far as such differences exist in the business operations of sugar manufacturers, there must exist differences in the prices they can pay for beets, or for any other producers' good. If a certain producer together with other pro-

ducers offered for sale more sugar than consumers were willing to buy at, let us say, a retail price of ten cents a pound, then the retail price would drop, wholesale prices would drop, and manufacturers' prices would drop. This would cut down profits and cut down the price that could be paid by our sugar producer for beets, unless he could force down some other cost item to absorb the fall in price of the product. These various considerations lead us then to the conclusion that there is a demand schedule for producers' goods, as, for example, sugar beets. Various producers can afford to pay various prices, how much they can afford to pay depending upon their profit. Furthermore, the same producer can pay various prices for various quantities. If he buys too many sugar beets and manufactures too much sugar, his supply, together with the supply of other producers, will be greater than consumers are able and willing to buy at the market price. He can therefore not pay as high a price for a very large quantity as for a smaller quantity, assuming that his competitors are buying as much as or more than before; but he must adjust what he is willing to pay to the lower price of sugar resulting from the increased quantity offered for sale.

7. Diminishing vendibility of producers' goods. From the foregoing discussion it appears that producers' goods are subject to the operation of the law of diminishing vendibility as are consumers' goods. But whereas the fact of diminishing vendibility in the case of consumers' goods is explained by the principle of diminishing utility and differences in the incomes and thrift of the consumers, in the case of producers' goods diminishing vendibility results from differences in profits realized by various business men and from the diminishing vendibility of their product. At a very high price only the rich will buy consumers' goods. With successive reductions in price people with lower and lower incomes are induced to buy, and the more opulent are induced to buy more freely. Similarly at a very high price relatively to the price of the product, only the most competent business men are able to buy producers' goods. With successive reductions in price producers less and less competent are able to buy without loss and the more competent producers expand production in the face of falling prices for the product. These principles may be illustrated by the following assumed demand schedule for sugar beets:

TABLE VIII. DEMAND SCHEDULE FOR SUGAR BEETS

MARKET PRICE OF BEETS PER TON	CLASSES OF MANUFACTURERS IN ORDER OF EFFICIENCY AND QUANTITY OF BEETS BOUGHT IN TONS			TOTAL DEMAND FOR BEETS (tons)
	Class A	Class B	Class C	
$10	1,500,000	0	0	1,500,000
9	2,250,000	1,000,000	0	3,225,000
8	3,000,000	1,500,000	1,000,000	5,500,000
7	4,500,000	2,000,000	1,500,000	8,000,000
6	6,000,000	3,000,000	2,000,000	11,000,000

In Table VIII we assume that the most competent producers, the A class, could afford to buy beets at $10 in comparatively small quantities. But that high price, taking into consideration the current market price of other cost items and refined sugar, makes it impossible for the B and C class of producers to operate without loss. At $9 a ton the A class would buy more freely and the B class would begin to produce, and at $8 the C class would try to do business. At that point perhaps further expansion of output would cause a fall in the price of refined sugar, and such further expansion would then depend upon a reduction in some cost item. If the price of beets dropped to $7, all producers might expand despite the lower price for the product, and, if the price dropped more, to $6, operations would expand still more, bringing up the total demand for beets to 11,000,000 tons. The vendibility of beets then diminishes from $10 a ton for 1,500,000 tons to $6 a ton when 11,000,000 tons are offered for sale. If the supply is 11,000,000 tons, marginal vendibility is $6, and this determines the market price of the whole supply just as in the case of consumers' goods.

The greater the supply, the lower the marginal vendibility and the price, other things being equal. If other things change, then marginal vendibility and price may change even if supply does not. For example, a rise in the price of sugar increases the price the C class buyers are able to pay, or increases the quantity they will want to buy at the existing price. This will tend to force up the price according to principles already discussed in an earlier chapter. In short, the relations between supply, demand, and price of producers' goods follow the same laws as in the case of consumers' goods.

8. Market prices of producers' goods, like those of consumers'

goods, mutually affect one another. Let us now take up the question of whether in the foregoing discussion we have merely assumed market prices of producers' goods or have explained them. It is true we assumed a current market price for each class of producers' goods used by the sugar manufacturer, but from that point we proceeded to the discussion of what he could pay as contrasted with what he did pay for each item, and we found that this potential price was based on his profits, and varied for various producers according to their profits, in such a way as to provide us with a demand schedule for sugar beets, showing various quantities that would be bought at various prices. This demand schedule, together with the supply of that particular producers' good, determines the market price for it. The nature of this demand schedule is determined in part by the price of the product — refined sugar, in part by the efficiency of the various producers; and in part by the market prices of all the other producers' goods combined. The demand schedule of any other cost item is determined in the same way. This does not seem to be reasoning in a circle, since we have the two independent factors — price of the finished product, and varying efficiency of the producers — affecting the prices of producers' goods in addition to the mutual effect of these prices upon one another. We have a similar condition to deal with in discussing the prices of consumers' goods — these also depend in part upon one another. What I am able and willing to pay for apples depends, not only upon how badly I want apples, upon how many I already have, and upon the size of my income, but also upon the price I must pay for shoes; and the price I am able and willing to pay for shoes depends upon how much I must pay for apples. In both cases, that of producers' goods and consumers' goods, with a given demand schedule, the market price rises or falls with the quantity supplied. The demand and supply schedules and the demand and supply curves shown in Chapter VI can be applied to producers' goods just as to consumers' goods.

9. The law of diminishing productivity and the price of producers' goods. In the foregoing discussion of the maximum prices a sugar manufacturer would be able and willing to pay for all his producers' goods, or for any one class of such goods, we have left out of consideration the influence of the law of diminishing productivity and the

law of indirect costs, both of which affect the prices business men are able and willing to pay for producers' goods rather than go without them. Let us consider first the law of diminishing productivity. In our discussion up to this point we have considered only how much the business man would be able and willing to pay for any indispensable producers' good, or class of producers' goods, rather than go without it. But not all units of producers' goods bought by any business man are necessarily indispensable. Our beet-sugar producer could perhaps have managed to produce sugar with fewer laborers than he actually employed, or with less fuel, or with less of some other class of producers' goods. There is no fixed proportion in which the various kinds of producers' goods must be mixed to produce the finished product. Relatively more or less of the one may be used in proportion to the quantity of the others. Furthermore, if a producer who is using a certain quantity of various kinds of producers' goods to begin with, proceeds to increase the quantity of any one kind without increasing the quantity used of the others, he will tend to increase his output, but not in proportion to the increase in the quantity used of that particular good. If he adds more and more of it, each successive unit added tends to add less and less to the total quantity of product.

This being true, it follows that a producer who already has as much of a particular kind of producers' good as he must have to operate, will not pay more for additional units than these additional units add in value to his total output or save for him in other costs. For example, if a beet-sugar manufacturer found one hundred laborers indispensable to the operation of his plant, the amount he would be willing to pay for them rather than go without them would be determined as indicated in our Sections 6 and 7. But the maximum wage he would pay for additional laborers would depend upon how much their labor added to the value of his product, or cut down his other expenses. The extra laborers might serve merely to handle the beets used a little more effectively so that a little more sugar would be produced. They might be useful also in preventing waste, thus cutting down other costs, and so make themselves worth something to the employer. Similar reasoning would hold for any other class of producers' goods, as machines, fuel, buildings, land. The larger the number of units of any particular class of goods a

producer is using relatively to the number of units of other classes of goods, the less tends to be the value to him of another unit of that class. It follows, therefore, that classes of producers' goods that are relatively abundant in some country as compared with other classes of producers' goods will tend to be low in price. In order that all units may be sold, the price will have to be low enough to induce producers to buy additional units which not only are not indispensable to them, but which may, in fact, add very little to the total value of their product or cut down very little other costs of production. These least desired units may be called the "marginal units," and just as in the case of consumers' goods the price they command determines the price for the whole supply. If the price of any kind of producers' goods is made low enough, producers can always be induced to buy a few more units. The quantity demanded can thus be considerably increased by concessions in price, and only by reductions in market price can excessive supplies of any class of producers' goods be sold.

10. Direct and indirect costs defined and illustrated. The law of diminishing productivity tends to force down very low the market price of producers' goods which are relatively abundant. It may be said to extend downward our demand schedule for producers' goods as shown on page 128. Now, on the other hand, the law of indirect costs tends to force up very high the price producers will pay for indispensable units of producers' goods that may become relatively scarce. It tends to extend upward our demand schedule for producers' goods.

Indirect costs are costs that tend to remain the same for a business establishment of a given size once the plant has been produced, regardless of the volume of business done, and to continue as a burden on the business man even if he closes the plant down altogether. By direct costs, as distinguished from indirect costs, we will understand all those costs which tend to vary directly with the volume of business transacted. Some cost items fall definitely under the head of direct costs, some definitely under the head of indirect costs, and some cost items are partly direct and partly indirect. Cost items of the last-named class increase with an increase in the volume of business transacted, but not so rapidly as the volume of business. Let us illustrate each of these classes of costs by one example.

If a business man has borrowed $100,000 on a mortgage on his factory building and pays six per cent on his loan, there we have an indirect cost of $6000 a year. It does not vary with his volume of business. The quantity of beets the beet-sugar producer must buy varies almost directly with his output and this cost item may be considered nearly a hundred per cent direct cost. His advertising expense may, however, be increased only fifty per cent if he doubles his output, and may, therefore, be put down as fifty per cent direct, and fifty per cent indirect. But let us consider the matter further.

Once the beet-sugar producer has erected his plant and begun operations, he has committed himself to various costs which he cannot escape by refusing to operate. Interest on borrowed capital is a fixed amount — it bears no relation to the volume of business transacted, with the qualification that short-term bank loans and other similar debts might be paid off and the interest stopped by the sale of raw materials, stock on hand, etc., and that the whole plant might possibly be sold to raise money to pay off other debts. If we assume, however, that the producer is not ready to give up altogether, then he must retain his plant, and cannot thus reduce his interest charges. Similarly taxes and insurance must be met and vary little, if any, with the volume of business, with the exception of excise taxes levied on each unit of output and income taxes which may vary with the profits being made. Repairs and depreciation must be considered whether or not the wheels are turning. Machines rust and grow out of date just as truly as they wear out from continued operation. The elements gradually cause the disintegration of the factory building whether it is being used or not. These items may be somewhat greater with a large volume of business than with a small volume, or for a plant being operated than for a plant closed down. On the other hand, in some cases depreciation and repairs may be greater for the unused plant. Return on the business man's own capital invested should be considered an indirect cost — that is, a fair rate of return, such as he might get in the way of interest on a well-secured loan.

On the other hand, the quantity of raw materials used varies directly with the volume of business done, and so for the most part does the amount of labor, fuel, and various kinds of supplies. How-

ever, some labor, some fuel, and some supplies are required in the plant even when it is closed down. Marketing expenses vary with the volume of business, but not directly in proportion to the volume, and they do not cease altogether when the plant closes down temporarily. Unless the producer is ready to quit once for all, he must keep up at least the skeleton of a marketing organization. It is not intended here to discuss adequately this subject of direct and indirect costs, which would require a whole volume, but merely to indicate the importance of the indirect costs in determining the price business men may be willing to pay for various classes of producers' goods rather than go without them. The costs we have called indirect are also referred to as fixed, constant, uncontrollable, or overhead costs, while direct costs are also called variable, controllable, or prime.

11. Indirect costs and the producers' maximum price. If business men found all their costs controllable or one hundred per cent variable, then the moment their total costs rose to or above total receipts for their product they would reduce operations and, if necessary to avoid loss, close down their plants, and perhaps retire from the business. But costs in many cases, as just explained, are not controllable. They are fixed, and the business man cannot avoid loss by reducing or ceasing operations, or by going out of business altogether. Getting into business and getting out again is like getting into and out of a trap. The going in is easier than the getting out. In getting out, the business man may find that the business trap has stripped him of all his belongings. Let us return once more to our sugar producer to illustrate our point further.

Suppose that he had been selling his sugar at $120 a ton, and making a profit of $10 a ton or $100,000 a year. Suppose then that the price of sugar had dropped for some reason to $100, leaving his costs of production the same. He would then have been losing $100,000 a year, and might have felt inclined to close down his plant temporarily, awaiting a better price for his product or lower costs of production. His income account from his business would have read as follows, giving totals only:

Gross revenue	$1,000,000
Costs	1,100,000
Loss	$ 100,000

Suppose he had decided to close down for the year, would he have had a more pleasant income account to contemplate? Repairs, depreciation, taxes, insurance, and interest on borrowed capital represent costs almost one hundred per cent fixed or indirect, and return on his own capital should also be included as an indirect cost. These items amount to $210,000. Let us assume that closing down the plant would have cut down the items for repairs, depreciation, taxes, and insurance by $30,000, and we have left from the $210,000 the amount of $180,000. In addition, part of the costs for labor, fuel, supplies, and marketing would have continued, let us say $20,000. His total indirect costs would then have amounted to $200,000 a year. His income from his business, if he had closed down, would of course have been zero. His income account, with no income in it, would then have read as follows:

Gross revenue	$ 0
Total costs	200,000
Loss	$200,000

Obviously, if he had considered this aspect of the matter carefully he would have continued to operate at a loss of $100,000 a year rather than to have closed down at a loss of $200,000 a year. He would have chosen the lesser of two evils. If the price of sugar had not dropped, but the price of sugar beets had risen from our assumed price of $8 a ton for the 80,000 tons he used to $10.50, the profit and loss result to him would have been the same — his $100,000 profit would have been replaced by a $100,000 loss. In our earlier discussion of this point we assumed that he would not buy them at a loss, and that his maximum price would be $9.25. But when we take into consideration the influence of indirect costs we see that the maximum price he is willing to pay may not be the price above which he cannot go without loss, but the price above which he cannot go without suffering a greater loss than he would suffer by closing his plant. He might, therefore, keep on buying beets until the price rose to $11.75 a ton, at which price his operating loss for the year would amount to $200,000, or as much as he would lose by closing his plant for a year. That is to say, at $11.75 a ton his 80,000 tons would cost him $300,000 more than at $8 a ton, the price which permitted him to make a profit of $100,000. He might complain about

the outrageous price of beets, and lay the blame perhaps on railroad rates, or on the high cost of labor, or on unfair competition by other beet-sugar mills; but he would keep on buying the beets at a loss rather than not buy them and suffer a greater loss. This is what we meant by saying that indirect costs tend to extend upward the demand schedule for producers' goods.

12. The temporary and the long-run maximum. The question may now be asked, Which price, then, is the maximum he would pay for beets, the $9.25 which represented the limit above which he could not go without loss, or the $11.75 which represents a loss equal to the loss sustained from closing down? The answer is: Temporarily, for a year or a few years, he might well pay as much as $11.75 rather than close his plant. In the long run, over a long term of years, in other words, he could not continue paying more than $9.25, since he would gradually lose his capital, find it more and more difficult to pay his bills, find credit harder to obtain, and would finally be forced into bankruptcy. Needless to say the reasoning just applied to sugar beets as representing one class of producers' goods — raw materials — applies also to such other classes of producers' goods as labor, fuel, supplies, machinery, buildings, and land. For all these there is a demand schedule that represents the quantity that would be bought at various prices by various business men, and for all of these there is a maximum price that any particular producer will pay temporarily for indispensable units rather than go without the goods required, and another and lower price which he may be able and willing to continue paying over a longer period of time, and a still lower price that he will pay for useful additional but not indispensable units.

13. Effect of restrictions of output upon the price of producers' goods. In this connection the question may be raised, What would be the effect on the price of producers' goods if a considerable number of important producers in a particular industry decided to restrict production or close their plants altogether? In the case of such a good as sugar beets used only in one industry, such action by the producers would markedly affect the total quantity demanded and would therefore tend to cause a marked fall in price. But in the case of such producers' goods as fuel or unskilled labor, used by practically all producers in all industries, the demand by

producers in a single industry represents only a small part of the total demand, and restriction of output by a single industry would not greatly affect demand and market price.

14. Selling out to escape loss from indirect costs. Another question that might be raised is this: Why might not the producer, who had to choose between operating at a loss and shutting down his plant at a greater loss, sell his plant and equipment, close out his stock of raw materials and finished goods, and retire from business? The answer is that he would in all probability be compelled to sell his plant and equipment at a great loss, and thus accept once for all as an accomplished fact the loss or ruin that only threatened to become real, and which a lucky turn in the tide of business might avert. Buyers at a good price would be hard to find for a money-losing business. Only if his plant and equipment were of such a nature that they could be readily converted to use in some other more profitable business could he hope to sell at a price that would not mean a severe loss. The more highly specialized a business man's plant is, and the less it is worth for other purposes, the greater loss he will be willing to suffer in his operations rather than close down. In later chapters we shall see the special importance of indirect costs and specialized plant to the business of railroads and public utilities.

EXERCISES

1. Does the law of diminishing utility apply to producers' goods? Does the law of diminishing vendibility? Why or why not?
2. Upon what depends the maximum sum a producer can afford to pay for all his producers' goods? for any one class of his producers' goods? for an additional useful but not indispensable unit of producers' goods of any kind?
3. Does the total sum a producer pays out for producers' goods equal his costs of production? Why or why not?
4. Why can some beet-sugar producers afford to pay more per ton for sugar beets than others? Does the price a beet-sugar manufacturer pays for labor affect the price he can pay for beets? Does the price he receives for his sugar affect the price he can pay for labor? Why or why not?
5. Suppose that three competing beet-sugar producers were paying $10 a ton for beets and that each was using 100,000 tons of beets a year. Suppose that the profits of the first were $300,000 a year, the profits of the second, $200,000, and the profits of the third, $0. How much would each probably be willing to pay for beets per ton rather than close down his plant, provided they had no indirect costs? Provided each had indirect costs of $100,000 a year? Why?

6. Assuming a certain quantity of eggs to be thrown on the market at a certain time, who determines what the price shall be, the producer, the wholesaler, the retailer, or the consumer? Why?

REFERENCES

I

Marshall, Alfred. *Principles of Economics* (8th edition), book v, chapter 4, sections 5 and 6; book v, chapter 6, sections 1–3.

Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 107 and 108.

Taussig, F. W. *Principles of Economics* (1921 edition), chapter 10, section 6.

II

Carver, T. N. *Distribution of Wealth.*

Clark, J. M. *The Economics of Overhead Costs.*

CHAPTER VIII

COSTS OF PRODUCTION, MARKET PRICE, AND PROFIT

1. Summary of some conclusions of preceding chapter. Fundamentally, as explained in the preceding chapter, the prices paid by producers for producers' goods depend upon what they expect to get for their product. Producers do not intentionally and knowingly involve themselves in business ventures in which costs exceed the value of the product, but always aim to pay something less in the aggregate for all producers' goods than the price expected for the product. The price any particular producer is able and willing to pay for any particular producers' good depends upon what he expects to get for the product and to pay out in other costs of production. The difference between these other costs and the price of the product represents the maximum he is able and willing to pay, with certain qualifications, as discussed in the preceding chapter. At that price he will buy a certain quantity of the good rather than do without it, but he will not pay that much if he can buy for less. Other producers have in mind maximum prices they could and would pay if necessary for various quantities. Various producers can and will pay various prices — higher or lower according to the amount of profits they would forego or the loss they would suffer by not buying at all. These various quantities demanded by various producers at various prices in the aggregate constitute the demand schedule for that good, and represent a condition such that the more that is offered for sale, the lower must be the price if the total quantity offered for sale is to be disposed of. Thus the demand schedule for the producers' good together with its supply determine its market price. The price may be just equal to what some producers are able and willing to pay, may be more than some are able and willing to pay, and less than others are willing and able to pay.

2. Collectively producers control market price of producers' goods; individually market price controls them. Although the various quantities of any producers' good demanded at various prices by producers in the aggregate constitute the demand schedule for that good, which together with the supply determines its market

price, no one producer alone determines that market price, and no one alone, unless his buying constitutes a considerable part of the total, can much affect the market price by arguing with the sellers. The market price is what it is through the operation of forces out of his control. If he wants the good, he must pay the price. He can take it or leave it. If it is essential to the conduct of his business, he must either buy or retire from business. If he buys, it becomes a cost of production, and together with the prices he pays for other goods bought under the same conditions constitutes his cost of production over which he has no control further than that he can stay in business and meet it, or get out. In short, although producers in the aggregate by their aggregate demand rule the prices of the producers' goods they buy, these prices, these costs of production, rule each producer individually. A rough analogy is this: We the people in the aggregate control our government, but our government controls us individually, and most of us must accept it as it is. If it becomes unbearable, we have the liberty to leave the country.

3. Under competitive conditions producers making profits tend to expand output. It may be laid down as a general rule, or economic law, that when business men under competitive conditions are making profits they try to increase their profits by expanding output. For example, if a sugar manufacturer finds that his costs amount to six cents a pound and the price of his product is eight cents, his profits are two cents a pound. If he assumes that on a larger output he can make the same profit per pound, he concludes that by doubling output he can double his profit. An output of 10,000,000 pounds will yield a profit of $200,000; an output of 20,000,000 pounds, a profit of $400,000. Naturally he will prefer $400,000 to $200,000. If he has reason to believe that the larger output will cause a reduction in price per pound, or an increase in cost per pound so great that the profit per pound will be cut down enough to offset the increase in the number of pounds sold, or more than offset it, so that his aggregate profits will be less than before, he may not expand. Under competitive conditions, with this one producer turning out only a fraction of the total supply, he will have little reason to believe that his own addition to the supply will be great enough to affect materially the market price of the total supply offered for sale, nor will he have reason to believe, in most cases,

that his own expansion in output will increase costs of production, by affecting the market price of his producers' goods. Under ordinary business conditions, then, any producer who is one of many competitors in the industry will naturally conclude that he can increase his profits by increasing the quantity he produces and sells. If a producer has a monopoly, or even if his output represents as much as fifty per cent of the total, he may with good reason conclude otherwise, as we shall explain in detail in a later chapter. But here we are dealing with competitive conditions.

A producer who is making good profits not only is likely to want to increase output in order to increase profits, but he is generally in a position to do so. His profits are available for investment, and as a rule he can make no better use of them than to invest them in his own business, which he knows to be a profitable one, and over which he has control. Furthermore, if he desires to expand more rapidly than is possible by using only his own profits, he can normally borrow money without difficulty at a reasonable rate, since lenders have confidence in a successful business man. Thus desire to expand and ability to expand go hand in hand.

4. Expansion of output and falling prices tend to force the least competent producers out of business. Now at any given time some producers in most if not all industries are making profits, and are therefore generally able and willing to expand output. Their expansion in output has a tendency to increase the total quantity of their product offered for sale. This increase in the supply tends to cause a fall in price. Thus we see that costs of production may affect the price of the product. It is because costs of some producers are below the market price of their product and they are making profits, that they increase the supply and so force down the price they get. No producer is, of course, pleased to see the price of his product falling, and each producer may realize that the expansion in output is the cause of the undesirable fall. Nevertheless, as long as any producer is making a fairly good profit, or perhaps any profit at all, he is likely to keep on expanding, knowing that his own addition to the total output cannot materially affect prices, and that even if he does not expand, others are likely to do so, with the result that the fall in the price is likely to continue. He may in fact reason that with the margin of profit growing ever narrower he

must expand in order that he may make up in volume of sales for the lower profit per unit.

As the market price falls under pressure of the increasing supply thrown on the market by the more successful producers, it may sink below the costs of production of the least competent and involve them in loss. If their losses are severe or long continued, they will be forced out of business. When these unfortunate men suspend operations, the supply may be temporarily decreased, or at least the increase may be checked. But as long as any producers are making profits they will tend to expand and further to increase supply and depress price, until additional incompetents are forced out by losses. An increase in demand may occur and offset the increase in supply, and so prevent a fall in price. Otherwise the expansion of output by the profit-makers and the fall in price continue until so many of the less competent are forced to suspend that the resulting decrease in supply offsets the increased production of the more successful producers.

5. Under conditions of constant and uniform cost, price would equal cost of production. In an industry such as some writers have imagined, in which all producers were equally able and produced at the same cost per unit, and in which the cost per unit of product remained the same no matter how great or small the output, and in which both expansion and contraction of output were easy to bring about without loss of money or time, expansion of output would continue as long as the producers were making profits — as long, that is, as the price of the product exceeded cost of production for all producers. Price could not exceed cost, since, if it did, supply would be increased and cause price to fall. Price could not remain below cost, since, if it did, supply would decrease — producers would quit producing at a loss — and price would rise. There would be under such circumstances what might be called a double equilibrium — supply would equal demand, at the market price, and market price would equal cost of production of any producer and of all producers.

Such a state of affairs can be diagramatically represented as in the accompanying chart.

In Figure 5 the line SS' represents cost of production per unit, and indicates that cost per unit is the same for all units produced,

cost being represented by the distance the line SS' is above the base line OX, as the distance OS, or BB'. The line DD' represents the demand schedule for the product, showing that more would be bought at a low price than at a higher price, and consequently that the greater the supply thrown on the market the lower would have to be the price in order to sell the whole supply. When the quantity OB is thrown on the market the price is BB' and just covers cost of production. If any less were offered for sale, as OA, the price would be above cost, as AA', and encourage expansion. If any more than OB were offered, as OC, price would fall below cost, as CC', and cause restriction of output, since producers would then be losing money.

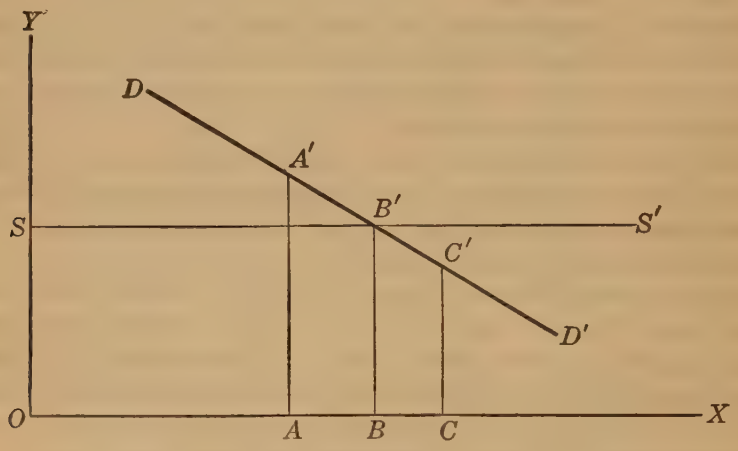


FIGURE 5

Conditions such as represented in Figure 5 are altogether fanciful, and no economist would seriously contend that any industry exists in which costs are thus constant and uniform for all producers. Some maintain, however, that in many industries there is a tendency to approach such conditions, the higher cost producers gradually being forced out of business or increasing in efficiency, and all producers being able to expand or contract output without in the long run affecting cost of production per unit. If there is any such tendency, then it succeeds in working itself out in practice in such small degree under present industrial conditions that it can quite safely

be disregarded in all practical discussions of the relation between demand, supply, cost of production, and price.

6. Varying cost, market price, and the marginal producer. In the real business world costs vary for different producers, and cost of production per unit varies for any one producer with an increase or decrease in his output. The first of these two facts can be illustrated by a table such as the following, which disregards the second, which we will reserve for later discussion.

TABLE IX. VARYING COSTS

PRODUCERS IN ORDER OF EFFICIENCY	COST PER UNIT (cents)	MARKET PRICE (cents)
A	6	9
B	7	9
C	8	9
D	9	9
E	10	9

In Table IX we show market price to be 9 cents, and cost of production to vary from 6 for the A class producers up to 10 cents for the E class, whom we may call failures, since their costs of production exceed the price of their product. Unless their costs are reduced or the price of their product, let us call it sugar, rises, they will be forced out of business. If it were not for the troublesome indirect costs which persist whether or not one continues to operate, they would not need to be forced out; they would be glad to get out, and stop their losses. All that keeps them in business is either the hope of better times or the certainty of a severe loss if they quit.

The D class of producers are just making expenses. Their costs equal market price. We might speak of either the E class or the D class as being the "marginal" producers. The E class are marginal in the sense of being the least efficient producers in the industry and on the road to failure. The D class are marginal in the sense of being on the margin that separates those who are making profits from those who are suffering losses. They are the least efficient who can long remain in business, costs and price remaining as they are. The A, B, and C classes are all making profits, of 3 cents, 2 cents, and 1 cent per pound respectively, and may therefore be expected to expand output, and thus to depress market price below 9 cents. If under the pressure of their increased output and the rising supply

price drops to 8 cents, then the C group become the marginal producers, in the sense of being the least efficient who can long remain in business, costs and price remaining the same. If the A and B class expand further, price may be forced to 7 cents, and the B class may become the marginal producers. The costs of the marginal producer under these circumstances would equal the market price. But they could not be said to determine the market price. Market price here, as in all other cases, is determined by the nature of the demand schedule and the quantity supplied. Market price here in fact determines the marginal producer, rather than the reverse. When it is 9 cents, the D class are the marginal producers; when it is 8 cents, the C class are the marginal producers. Market price is the cause, the marginal producers the effect. When it changes, they change. Only when the addition to the total supply that causes the fall in price can be produced alone by these marginal producers can they be said to determine market price. For example, if the D class are producing at a cost of 9 cents, and the A, B, and C classes, although producing their part of the existing supply at a lower cost, cannot increase their output at all, or at any rate not at less than a cost of 9 cents for the additional units, then market price would tend to remain at 9 cents, since the D class would not expand and push price below their own costs of production. They would not and could not for any considerable time produce at a loss. If the lower-cost producers could expand output only at a cost of 9 cents for their additional units, they might be said to be marginal producers for that part of their supply, and they would be unlikely to produce the extra units at a market price less than their cost of production, 9 cents. Expressing these ideas in other words, we may say that if any commodity is produced under such conditions that expansion in output is possible only at gradually rising costs per unit for the additional units, then market price must rise to cover the cost of producing the extra units. Otherwise they will not be produced. Since conditions of increasing cost will be discussed in detail in the following chapters, we need not consider this point further here.

7. **Causes of differences in cost: differences in ability.** We have stated that some business men produce at lower costs per unit than others. This is true primarily because some business men have

greater business ability than others. That is to say, it is because some business men surpass others in the qualities of imagination or foresight, judgment, courage, initiative, resourcefulness, and administrative or executive ability. Other factors that tend to make some producers' costs lower than the costs of others are luck, command of capital, influential connections, and certain characteristics not always admirable.

Other things being equal, the greater one's business ability is the lower will be his costs of production. Superior foresight and judgment, for instance, will lead one business man to buy heavily of raw materials or contract for the construction of buildings before a rise in prices takes place, while his less able competitors let the opportunity slip by. Or again the able man will foresee a slump in prices and will not be caught with a large quantity of raw materials and finished stock of goods on his hands bought at high prices and produced at high cost, while his less alert fellows will be overloaded with high-cost inventory after buying and producing in large quantities under the assumption that costs and prices were going higher and higher. Courage is necessary if the business man is to realize to the full the value of foresight and judgment. It is necessary not merely to see and judge correctly what ought to be done, but to act. Resourcefulness helps in times of unexpected emergencies, as when the old source of supply of raw materials is suddenly snatched away by the outbreak of war, or when fire destroys plant and equipment. Initiative points the way to the adoption of new and improved methods of production. A high degree of administrative capacity or executive ability gives the power of getting relatively much work done with relatively little effort. The able manager does his work in an orderly way, avoids unnecessary worry and fatigue, and keeps his head clear. He puts the right man at the right job, gains the good will and the respect of his subordinates, his customers, and his creditors. If it becomes necessary to speed up or slow down his business machine, he shifts the speed without raking the gears. In sum, it requires a nice blending of the various elements of business ability to make the successful business man — the low-cost producer.

8. Other causes of differences in cost. Although differences in business ability more than anything else cause differences in cost,

luck plays a part. Some changes in business conditions are unpredictable, and catch even the most far-sighted business men unaware. If before a sharp and unpredictable slump in prices a manufacturer or a merchant has an abnormally small inventory on hand, he is lucky; if he happens to be heavily loaded up with goods, he is unlucky. In the one case he can buy more cheaply and reduce his costs; in the other he has already incurred high costs and must bear them.

In some industries cost of production per unit of output is lower in a large plant than in a small one because of the economies of large-scale production, for reasons that will be discussed in detail in a later chapter. Therefore one business man may have lower costs than another simply because he commands a greater amount of capital, and not because he is necessarily a better business man. Entirely aside from the scale of production, the command of abundant capital tends to lower costs of production. The business man who has relatively little capital of his own must borrow more extensively from others than the man who can finance his business more largely out of his own resources, and the more extensively a business man borrows, in proportion to the size of his business, and the less capital of his own he employs, the greater is the rate of interest he is likely to have to pay for borrowed money. This is because the lenders take more risk in lending to the impecunious man than to the more solid business man with fairly ample resources of his own. For example, if a business man requires the use of $100,000 in his business, and has only $25,000 of his own, he borrows $75,000. If his business fails and only $50,000 is saved from the wreck, his creditors lose $25,000, even if they get the whole $50,000 that remains. On the other hand, if the business man had had $75,000 of his own, and had borrowed only $25,000, his creditors would have run little risk of losing part of their money, even if he had lost half of the whole $100,000 invested.

When a business man borrows from others under such conditions that the loan involves risk of loss to the lenders, they will in fact charge him more than mere interest — that is, more than a mere premium on present goods in terms of future goods. They will charge him something for the risk they take of never being paid back. They will charge him, let us say five per cent in the way of interest

and five per cent for risk. They become, in effect, partners in the risk-taking aspect of the enterprise and thus share with the borrower in the profits of business if any profits are realized, to the extent that the rate he pays for loans exceeds the rate of interest on safe loans. Although from the lenders' point of view this extra five per cent they get above the interest rate on safe loans represents profit, to the business man who contracts to pay it, it represents a cost of production, and increases his costs by that much over what his costs would be if he did not need to borrow. As has already been indicated, when a business man employs his own capital he must figure as a cost only that rate of interest on his capital that he could get if he lent it to others in a risk-free loan.

Influential connections may help a business man to keep down his costs in various ways, such as giving him opportunities to borrow money at lower rates, to buy his raw materials more advantageously, or to learn of impending booms or depressions in business as a whole or in those branches of particular importance to him.

Certain characteristics of not an admirable kind may in some cases permit some business men to cut costs below those of competitors of higher moral character. The dishonest, unscrupulous, thick-skinned, and hard-hearted business man may profit from his contemptible qualities, just as business men of a better type profit from their more admirable qualities. Cost may be cut, for instance, through the use of shoddy raw materials which injure the quality of the product, but not always its appearance when new. By sharp business practice the dishonest or unscrupulous business man may defraud his creditors, and thus reduce his costs, as, for example, repudiating contracts morally but not legally binding, when the opportunity arises of making a more favorable contract. To illustrate this point we may mention the numerous cases in which merchants who had contracted to buy sugar from the American Sugar Refining Company a few years ago repudiated their contracts when the price of sugar suddenly fell. Thick-skinned and hard-hearted men may take advantage of the helpless conditions of some of their employees to force wages down below the starvation level, and make no attempt to provide sanitary and safe working conditions in their plants, and thus keep their costs below those of more humane employers.

Whether or not differences in the quality of natural resources, such as agricultural land, mineral deposits, water-power sites, or choice locations for merchandising establishments or factories, are causes of differences in costs or expenses of production can be discussed to better advantage in later chapters and will not be considered here.

9. Causes of differences in profits. In any given industry differences in profits are the result largely of differences in costs of production of the competing producers. Therefore, causes of differences in costs are also causes of differences in profits. Other things being equal, the business man who for any or various reasons produces at lower costs makes larger profits than others.

It is, of course, true that a business man may realize greater profits by selling his product at a higher price as well as by cutting down his costs, and even under competitive conditions all producers need not sell their product at the same price. Some can drive shrewder bargains than others, and obtain better terms. And in the fluctuations that characterize market prices, some can sell at the top while others to their chagrin sell at the bottom. To a considerable degree, however, the qualities that favor buying to advantage also favor selling to advantage, so that differences in costs and differences in profits of various business men in any industry are likely to be quite similar. One must, however, consider differences in the relative scale of production of the various producers. A producer who operates on twice the scale of another makes profits twice as great in the aggregate, if his cost of production per unit and the price he obtains for his product are the same.

Since differences in costs are the result primarily of differences in business ability, differences in profits must likewise be the result primarily of differences in business ability. Large fortunes won in business, then, may ordinarily be considered the mark of unusual business ability. But many men ride to fortune on the wings of luck. A stupid, incompetent business man may blunder into a lucky deal, or a series of lucky deals, and emerge a rich man with a high opinion of his business capacity. Men who thus make fortunes in business will do well to retire at once. In the long run luck will not hold. Fortunes are also made in business through dishonest practices, brutish selfishness, and through the possession by in-

heritance of a good-sized nest egg to begin on. Rich men's sons, however, often appear to have made large business profits when as a matter of fact their income represents merely a fair return on their capital, such as they might have secured by investing their capital in well-secured bonds. In other words, their income represents interest and not profits. And the millions they possess in old age represent merely the interest and the compound interest on the hundreds of thousands they inherited in their youth; and are not a sign of preëminent business ability.

In the discussion of differences in costs and profits up to this point we have considered only differences within a single industry. In one industry as compared with another, risks may be greater. Supply and demand, costs of production, and market price may be subject to sharper fluctuations. If these fluctuations are predictable by the more able business men, they afford exceptional opportunities for the exercise of foresight, and in such industries business men who have unusual forecasting ability find the most ample scope for the use of this talent, and may reap the greatest profits. In such industries luck also plays a prominent part in the building of fortunes. On the other hand, in the more stable industries administrative capacity counts more heavily, and the able business man gains a fortune by cutting costs just a trifle below the level of the average market price, and clearing a small profit per unit on a large output.

Profits may be larger in some industries than in others because competition is less keen. Loan sharks make large profits in lending money to needy persons at exorbitant rates, and these profits are made possible at least in part by the disreputable nature of the business and the fact that there is some danger of prosecution under the usury laws of the various States.

The pioneers in a new and rapidly expanding industry may make large profits for a time, while demand for the product is growing so rapidly that it runs ahead of supply. It may be possible to sell the whole supply, or at least the product of most of the producers, at a price considerably above cost of production. Something of this sort happened in the automobile industry during its first twenty years. The large profits naturally stimulate the industry so that output grows in leaps and bounds. Still, demand may increase with equal rapidity and postpone for years the time when a con-

siderable proportion of higher-cost producers find their costs in excess of price. Eventually in such an industry the "saturation point" is reached, and the quantity demanded increases less rapidly or not at all. Then the expanding production, if competition exists, overtakes demand at the market price, or at any rate at the price that covers cost of the least efficient producers, and losses begin to dampen the ardor of these unfortunates.

In some industries competition may be wholly lacking or much restricted by means of patents, copyrights, trademarks, exclusive franchises, or combinations, and here large gains may be reaped which should perhaps be designated as monopoly gains rather than as business profits, since they do not truly represent a return for either business ability or business risk, except in part. On monopoly and monopoly gains more will be said in a later chapter.

10. A rising price level increases profits. A very important cause of variation in profits is found in the tendency of the general level of prices to rise and fall from time to time. This subject can be discussed more adequately after we have considered the subject of money and banking, but the essential point may be stated now. Normally in any competitive industry producers tend to expand output and to compete with one another in the sale of their product and the purchase of producers' goods until market price falls below the cost of production of the least efficient producers, equals the cost of producers of moderate ability, and leaves even the most efficient producers only a modest profit per unit. A given price for their product tends, in other words, to cause the prices of their producers' goods to rise until in the aggregate the prices paid for the producers' goods equal the price of the product. If now the price at which the total supply of the product can be sold rises for any reason, as an increase in the quantity of money in circulation, all who have been making profits make more profits, and even some who were losing money get their heads above water. Naturally this stimulates the producers to expand output and induces among them keener competition for possession of the necessary producers' goods, and thus brings about a rise in costs. If meanwhile, however, the price of their product has again risen, profits are boosted once more, and remain large until costs are again forced upward. If the price of the product keeps rising persistently, costs rise also

persistently, but the rise in costs, depending upon the rise in price of the product, tends to lag persistently behind the rise in the price of the product. Hence profits tend to remain abnormally high. Now it often happens that for a year or more commodity prices tend upward, and during this general rise in prices business men normally make higher profits than when prices remain stationary. On the contrary, when prices tend downward the prices of the producers' goods, or costs of production, lag behind prices of the products, and business men make smaller profits than when prices are stationary.

11. Cost of the business man's own labor. In connection with the foregoing discussion this question might well be raised: If cost of production includes such wages as the business man himself might receive if working for others, would not the more capable business man need to calculate the cost of his own labor at a higher figure than the less capable business man, and would not this offset the greater gains he realized through his greater ability? Doubtless the able man can command a higher salary than the incompetent man, but salaried managers often do not have full scope for the employment of their business ability, and being hampered in their activities are worth less and are paid less than they could gain in the conduct of an independent business. Who would have paid to Henry Ford in salary the enormous sums he has realized in profit from his own business? It is possible that he might have been a rather incompetent salaried manager had he been working for the General Motors Company and receiving instructions from above.

On the other hand, business men who fail to take into consideration the salary they might have earned if employed by others overestimate their profits — that is to say, they overestimate the gains they realize from being in business over and above the income they might enjoy if holding a salaried position.

12. Are there net profits in industry as a whole? Under the fanciful conditions outlined in Section 5 of this chapter, with all producers producing at equal cost, no matter how much or little they produced, and with all producers capable of expanding or reducing output readily without loss and without affecting cost per unit, cost of production for each unit would equal market price, and total costs of the whole supply would equal the market value of the whole supply. There would be neither profits nor losses in the industry.

Under actual business conditions costs vary from producer to producer, supply cannot readily be expanded or reduced without affecting costs per unit, and market price cannot in the nature of things equal the cost of production of each unit, or for each producer. There are bound to be profits or losses, or both. Yet there is good reason for maintaining that taking any industry as a whole and in the long run total costs of production of the whole supply tend to equal the total market value of the product. In other words, there is a tendency for the net profit of all producers in the aggregate in the long run to equal zero. This, be it understood, is true only when interest on the business man's own capital and fair wages for his own labor are included as costs of production and are consequently not reckoned as profits.

Under normal conditions in any industry some producers are making profits, some are suffering losses, and some are producing at a cost just equaling market price, or perhaps we should say approximately equaling market price, so that their profits or losses are negligible. There seem to be then chances both for profit and for loss, both for old producers and for newcomers who contemplate entering the field.

If in any given industry the chances for profit as compared with the chances for loss seem to be better than in some other industry, the first will be more attractive than the second. Young men just setting up in business for themselves will tend to enter this more attractive field, and even men established in the other industry will tend to break away from it and enter the more favored industry. Thus an equalizing process is set in motion, which increases competition in the more favored industry and reduces it in the less favored industry, and which tends to even up the chances of profit and loss in the one as compared with the other. There tends to be a rough sort of equality, therefore, in all industries. This, be it understood, is only a tendency, not a mathematical equation, and is subject to being upset by a wide variety of disturbing events, as the rise of a new industry, the sharp decline in the demand for the product of an old one, changing price levels, and the like. But it is a persistent tendency.

Now suppose that in any particular industries, or in all industries as a whole, the chances of profits outweighed the chances of loss.

Suppose, in other words, that business men as a group averaged higher net incomes through being in business than they would average if they worked for others at a fair salary considering their ability, and lent their own capital to others at the current rate of interest on safe investments. In other words, suppose that the independent business men enjoyed larger incomes than equally able salaried men, making for each class due allowance for the capital owned. There would then be a strong tendency for salaried men to embark on independent business careers of their own. These men would then use their own capital instead of lending it to others at the current rate of return, and would compete with the other business men for the available supply of labor, materials, and loanable funds and other producers' goods, and would compete with the older business men in the sale of their products. Salaried men would become relatively scarcer, and so would loanable funds, while the demand for them increased. Obviously costs of production represented by interest on borrowed capital and salaries would rise. Other costs might also rise, and the price of products might fall. At any rate, profits would be cut down, and losses would be increased, and this process would tend to go on until on the average no clear advantage could be secured by switching from the position of salaried worker and lender of capital into that of the independent business man and borrower for business purposes. Theoretically that point would be reached when the chances of profit and loss were about even — when profits just offset losses, and net profits for industry as a whole were zero.

It is often implied that there must be some net profits in any risky industry — and all industries are more or less risky; otherwise men will not venture in and suffer the nervous strain and the worry arising from the risk of losing all their past accumulations. But as a matter of fact it is not necessary that there be a net gain for business in the aggregate — that there be profits in the aggregate exceeding losses in the aggregate. It is only necessary that each particular venturer should feel that his own chances of profit are greater than his chances of loss, and here the tendency of human beings to be unduly optimistic concerning their own chances of success plays an important part. There are no net gains in gambling games nor in lotteries. Yet laws must be enacted to keep these enterprises

from flourishing. Provided only there are prizes to be won people will venture in, even though there is no net gain to pay for the nervous strain and worry, and even though for all the participants in the aggregate except the proprietor a net loss must be borne, as is the case in many lotteries and gambling games.

Taking into consideration the propensity of human beings to gamble, and the enjoyment they seem to derive from taking chances, even though the cards be stacked against them, one might venture to believe that instead of there being net profits in industry as a whole there are net losses. In other words, that business men pay more for their producers' goods in the aggregate than they get for their products, and that in the aggregate they fare no better than the holders of lottery tickets which cost more than the amount of the prizes to be won. As an offset to this consideration must be borne in mind, however, gains that tend to come to business men from rapid improvements in methods of production, as during the Industrial Revolution, and from long-continued rises in the price level, increase in land values, and from other sources of fortuitous gains, which are not always offset by corresponding losses.

13. Profits of corporations. Under the corporate form of industry the business is often managed by men who themselves own but a very small part of the capital and who are in effect salaried managers for the stockholders. Here profits constitute a reward for risk and for judgment in selecting the industry into which capital is to be sunk, and in selecting the right kind of managers, and cannot properly be called reward for business ability in the sense of ability to operate a business. This matter can be considered to better advantage in our chapter on "Risk, Insurance, and Speculalation," and will therefore not be treated at length here. One point, however, may be noted. Dividends on corporation stock in excess of the current rate of interest on safe bond investments represent profit — which in this case is primarily a reward for risk. If the conclusions reached in the foregoing discussion are sound, there is a strong tendency for the average return on safe bonds to equal the average return from investments in stock, for industry as a whole and in the long run.

EXERCISES

1. Assuming a given quantity of some producers' good, such as copper or lead, to be thrown on the market at some particular time, what determines the market price? Would in this case cost of production affect the market price? Does cost of production of copper or lead in any way affect the market price? Why or why not?
2. When any producer under competitive conditions is making a profit, he is likely to expand production. Give reasons.
3. If under competitive conditions all producers in a certain industry produced at equal cost, and if all could expand or contract production without affecting cost of production per unit of output, what would be the relation between market price and cost of production of their product? Why? Suppose that the demand schedule for this commodity were as follows:

Millions of Units Demanded	Market Price
2	$10
3	9
4	8
5	7
6	6
7	5

What would be the market price and the quantity produced if cost of production were $6 per unit? $8 per unit? $9 per unit? Why would the quantity produced and market price be neither more nor less?

4. What is meant by the marginal producer? Does the marginal producer's cost of production determine market price, or does market price determine which producer shall be the marginal one? Explain.
5. There may be said to be a strong tendency in the long run for total profits in any industry and in all industries just to equal total losses, so that the chances for profit of all business men in the aggregate are just offset by their chances for loss. As a corollary of this proposition it may be said that the chances for profit or loss in any industry are no better and no worse than in any other industry. Explain why this tendency exists.
6. At some particular time may business men in the aggregate in one industry be enjoying large profits, while business men in the aggregate in another industry are suffering great losses? Why? If such conditions did exist, what would be likely to happen in the two industries? Why? What would be the results in respect to profits and losses?

REFERENCES

I

Carver, T. N. *Distribution of Wealth*, chapter 7.
Edie, L. D. *Economics: Principles and Problems*, chapters 12 and 13.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 17 and 40.
Marshall, Alfred. *Principles of Economics* (8th edition), book v, chapter 3.
Seager, H. R. *Principles of Economics*, chapter 12.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 12, 49, and 50.

II

Foster, W. F., and Catchings, W. *Profits.*
Hastings, H. B. *Costs and Profits.*
Knight, F. H. *Risk, Uncertainty, and Profit.*

CHAPTER IX

COST AND PRICE IN AGRICULTURE: WHEAT-GROWING

1. Two classes of industries: industries of increasing cost and industries of decreasing cost. In the most general way it may be said that all producers in all industries use the same kinds of producers' goods. All use some land, some man-made material objects, or capital, and some labor. But business men in various industries require these in varying proportion, and employ them under conditions which lead to widely different results in cost of production per unit as the individual business establishments grow larger, and as the total output of the industries increases. In the extractive industries, such as agriculture, mining, and forestry, producers use relatively much land and relatively little capital and labor, and in these industries production is said to be carried on under conditions of increasing cost. By this is meant that as output is increased, beyond a certain point, the extra units can be produced only at progressively increasing costs per unit. On the other hand, in manufacturing, transportation, and merchandising, producers use relatively little land and relatively much capital and labor, and in these industries production may be carried on under conditions of decreasing cost. That is to say, conditions of production are such that average cost of production per unit becomes progressively less as total output expands.

It is the purpose of the present chapter to explain why the law of increasing costs applies to extractive industries, and particularly why it applies to agriculture. To make the discussion as concrete as possible and therefore more easily followed by the beginner, it will be confined to a consideration of conditions of cost in a single agricultural industry, wheat-growing, and illustrated by statistical examples. To bring the discussion nearer home we will consider wheat-growing only in the United States.

2. Expansion of wheat-growing in the United States. Wheat is one of the great food grains of the world, and millions of white-bread eaters in the United States and other countries will pay any

reasonable price for wheat in the form of flour or bakery products rather than go without it. The number of white-bread eaters has been increasing rapidly for several centuries, and particularly rapidly during the last one hundred and fifty years, the period of our own national development. Consequently the number of bushels of wheat demanded has also increased rapidly. The increase in demand in our own country and to some extent that in other countries has been met by an enormous expansion in the output of wheat in the United States. From an annual production of a comparatively insignificant amount in our colonial days, wheat production had grown to 100,000,000 bushels by 1850, and to 1,000,000,000 bushels in 1915. The 1915 crop, however, was unusually large because an abnormally large acreage had been planted as a result of war, and the yield happened to be large per acre. A crop of about 800,000,000 bushels may now be considered a normal crop for the United States.

3. Only two ways of increasing output. Let us note the conditions under which this large expansion in wheat production took place. The output could be increased in only two ways — either by growing more bushels per acre or by using more acres. The number of bushels that may be grown on one acre is limited in two ways — first, by physical conditions which put an absolute limit on the amount that can be produced on one acre in a year, and second, by economic conditions that make it unprofitable to produce the quantity physically possible. It is obvious that on an acre of land there is standing room for only a limited number of stalks of wheat, and that there is a limit to the number of grains each stalk can bear. What this physical limit really is does not at present greatly concern us, whether it be 100 bushels, or 200, or more. For practically all wheat land in the world the economic limit of profitable production is considerably below 100 bushels per acre per year, and it is this economic limit that we must consider.

4. The law of diminishing returns. It is generally known and can be proved by actual experiment that, after a certain point is reached in the intensity of cultivation of an acre of land, further applications of labor and capital do not yield proportional returns. More concretely, a farmer who could grow 2000 bushels of wheat on a 100-acre field, at a cost, for labor, implements, and other producers' goods used, of $500, could not double, treble, or quadruple

his yield merely by doubling, trebling, or quadrupling his costs of production. The second $500 worth of producers' goods, other than land, applied to the same field would not produce another 2000 bushels, the third $500 a third 2000, and so on. Some increase in production does result from more intensive cultivation — as represented by deeper plowing, more careful preparation of the soil after plowing, the use of more fertilizer, the use of better and more expensive seed, more care in harvesting, and so on, but the increase in production does not keep pace with the increase in expense involved. This being so, it costs more to produce the additional bushels per acre than it does to produce the smaller number of bushels. This may be illustrated by the figures shown in Table X. The table assumes that the price paid per unit for producers'

Table X. Diminishing Returns and Increasing Cost

Total Costs	Total Number of Bushels Grown	Additional Bushels Resulting from Additional Costs	Cost per Bushel of Additional Bushels
$500	2000	2000	$0.25
1000	3000	1000	0.50
1500	3500	500	1.00
2000	3750	250	2.00

goods used on the land remains the same, and that therefore the increase in costs measures the increase in the intensity of cultivation — or the amount of labor and capital applied on the land.

We assume in our table that on a certain field, let us call it 100 acres, we can grow 2000 bushels of wheat, or 20 bushels per acre, with a total expense of cultivation of $500. The 2000 bushels grown under these conditions would involve a cost per bushel of $.25. We assume that doubling the costs and the intensity of cultivation would not double the output, but would only bring it up to 3000 bushels, an increase of 1000 bushels. This additional 1000 bushels would therefore cost twice as much per bushel as the first 2000 bushels, or $.50. We assume that the third $500 of expense would add only 500 additional bushels, and that these 500 bushels would therefore involve an expense of $1 per bushel, and that the fourth $500 of ex-

pense would add only 250 bushels to the total output, and that these 250 bushels would involve an expense of $2 per bushel. A word of caution is necessary here, as the writer knows from past experience with students. We are not, as students very commonly assume, speaking of first, second, or third 1000 bushels of wheat in a chronological sense, nor are we speaking of the production of crops in successive years on the same piece of land, which is gradually wearing out. We are speaking of the different results in bushels on a given piece of land in a given year from different sums of money spent in cultivation. We may assume that a farmer knows from past experience approximately what yield per acre he might expect with various degrees of intensity of cultivation in any particular year, making allowance, of course, for unforeseeable climatic conditions. It is perhaps hardly necessary to point out that if he chooses to resort to cultivation intensive enough to produce 3750 bushels on his 100-acre field at a total cost of $2000, he will not get four separate lots of wheat definitely earmarked as produced at the various costs of $.25, $.50, $1, and $2. He will have 3750 bushels all alike which cost him in the aggregate $2000, or an average of $.53 per bushel. If he has good reason to believe that he could have produced 3500 bushels at a cost of $1500, then he may calculate that the cost of producing the additional 250 was $500, or $2 per bushel. This is a more important point than may at first appear, as the student will realize later. The principle here discussed and illustrated, that after a certain point is reached in the intensity of cultivation of an acre of land further applications of labor and capital do not yield proportional returns, is referred to as the law of diminishing returns. It may also be called the law of increasing cost, since, as appears in Table X, cost per unit increases as returns per unit of expense decrease. When we have reached that degree of intensity of cultivation such that additional bushels per acre can only be produced at increasing cost, we have reached the point of diminishing returns.

5. **Expansion of output involves increasing cost per bushel.** If there were an unlimited amount of first-class land equally near the market, accessible to wheat producers without cost, no land would be cultivated beyond the point of diminishing returns. As soon as growers discovered that it cost more, for example, to grow the third

ten bushels on an acre of land than the first or second ten bushels, they would take up more land and grow the additional bushels on the additional acres instead of on the same acres. If costs and yield were as indicated in Table X, for instance, nobody would try to grow more than 20 bushels per acre, and all wheat produced would cost just $.25 per bushel. It would be foolish to spend $1000 to grow 3000 bushels on 100 acres, when the same expenditures spread over 200 acres would yield 4000 bushels. But there is not an unlimited amount of first-class land equally near the market. Some pieces of land are less well fitted for growing wheat than others, either because of the nature of the soil or because of climatic conditions, and some land is farther from the market than other land. Now, other things being equal, good land produces more wheat per acre than poor land. With the same kind of cultivation — the same amount of labor and capital applied per acre — several pieces of land of varying degrees of fertility will produce varying quantities of wheat per acre, some perhaps as much as 40 bushels, others as little as 5 or 10. Naturally the less the land produces per acre with a given expenditure for cultivation, the greater will be the cost per bushel. To resort to worse land, therefore, increases the cost per bushel of growing the additional bushels just as truly as does the resort to more intensive cultivation of the best land.

To resort to land far from market also increases costs, even though the land be otherwise first-class in quality. Hauling wheat to market entails expenses just as truly as growing it, and generally the farther the land is from market the greater will be the costs of transportation which must be added to the costs of cultivation. It follows, therefore, that no matter how we try to increase the output of wheat, after a certain point is reached in the expansion of output, namely, after all the best land nearest the market has been cultivated up to the point of diminishing returns, further expansion involves an increase in the cost per bushel for the additional bushels produced. More intensive cultivation increases cost. Resort to worse land increases cost. Resort to land farther from market increases cost. In the United States expansion of output has been brought about by all three of these ways — more intensive use of the better land, resort to the use of other land, of land less fertile, and of land farther from market. Of the approximately 60,000,000 acres of

land devoted each year to wheat-growing in this country, some is very fertile and some is very poor; some is very close to market and some very far from it; some is farmed with a high degree of intensity and some receives but scant attention. Since this land varies in fertility by imperceptible degrees from the richest to the poorest, and in distance from market from one mile or less to many hundreds of miles, there are literally thousands of grades of land the product of which is produced and marketed at thousands of differing costs. It is our immediate problem to explain how, if at all, these costs of production affect market price, and which if any of the thousands of varying costs have a more direct effect on market price than the others.

6. Assumptions made to simplify discussion of increasing costs. To simplify and clarify our discussion, we must make various assumptions about our wheat land, the costs of cultivation and marketing and the yield per acre, but these assumptions will be of such a nature that they will not invalidate the conclusions which may be drawn from the discussion. We will assume, first of all, that our costs of cultivation do not include a price paid for the land used in production, but include all expenses involved in preparing the soil and keeping it in good condition. We will assume also that these costs vary only because of differences in the fertility of the land and differences in the intensity of cultivation; that otherwise they are exactly the same for all producers, regardless of the extent of their operation or ability or the location of their land. We assume, too, that all producers for the total period under consideration pay the same prices for tools, implements, supplies, labor, and other producers' goods that they buy and that methods of production remain the same. In brief, we assume all other things to be equal, and concentrate our attention on the effects of differences in fertility, differences in distance from market, and differences in intensity of cultivation. After we have noted these effects we may take up for consideration one by one the various other things which we have assumed to be equal, but which are not, and note how they affect our conclusions. We shall also explain why for the time being we leave out of consideration the cost of the land itself.

7. A simplified table of costs. In addition to the assumptions made in the foregoing section, we will make some further assump-

tions which can be discussed most conveniently in connection with Table XI, by means of which we shall illustrate the principle of

TABLE XI. COST OF CULTIVATION AND MARKETING OF WHEAT PER BUSHEL IN SUCCESSIVE FIVE-BUSHEL LOTS ON SIX GRADES OF LAND

GRADE OF LAND	A	A′	B	B′	C	C′
ACRES (in millions)	12	6	5	15	8	24
Cost per bushel:						
First five	$ .25	$ .50	$ .50	$ .75	$ .75	$1.00
Second five	.25	.50	.50	.75	1.00	1.25
Third five	.25	.50	.75	1.00	1.25	1.50
Fourth five	.50	.75	1.00	1.25	1.50	1.75
Fifth five	.75	1.00	1.25	1.50	2.00	2.25
Sixth five	1.00	1.25	1.75	2.00	4.00	4.25
Seventh five	1.25	1.50	2.75	3.00	..	..
Eighth five	1.50	1.75	3.75	4.00	..	..
Ninth five	2.00	2.25	..	..	..	..

increasing cost as it operates in agriculture. In this table we show six classes of land, A, B, and C, and A′, B′, and C′. We let the A grade land represent the best land, B, the medium grade land, and C, the poorest land, all near the market, while A′, B′, and C′ represent the three grades, best, medium, and poorest, respectively, far from market. In the number of grades of land this table, of course, does not represent actual facts, since, as already stated, there are literally thousands of grades, but the table does show lands differing in fertility and distance from market. In the number of acres presented as devoted to wheat-growing the table agrees tolerably well with actual facts, showing a total of 60,000,000 acres, which is approximately the acreage devoted to wheat in the United States in recent years. In the cost of production figures we assume the cost per bushel of cultivation and marketing to be lowest for the first three five-bushel lots, or the first fifteen bushels per acre, on the A grade land, namely, $.25. We assume the cost of cultivation to increase per bushel on the A grade land after the third five-bushel lot, up to $.50 a bushel for the fourth five bushels, $.75 for the fifth, and so on up to $2 a bushel for the ninth five bushels. Costs of cultivation on the A′ land we assume to be the same as on A grade land, it being equally fertile, but we add $.25 a bushel to cover extra costs of trans-

portation to market from the more distant land. Cost of production on the medium grade land is higher than on the best land, running from $.50 a bushel on the first two five-bushel lots up to $.75 on the third five bushels and $3.75 a bushel on the eighth five-bushel lot. Cost of cultivation on B′ land is assumed to be the same as on B grade land, but $.25 is added to cover extra cost of transportation. On C grade land cost of cultivation is higher in turn than on B grade land, and cost of cultivation on C′ land is assumed to be equal to cost on C, but again $.25 is added to cover the extra cost of transportation to market from the more distant land. In conformity to actual conditions more land is shown distant from the market than near the market, and more medium grade and poor land than good land. In brief, in this table we try to represent conditions something like those we actually have in the United States, without trying to use statistics giving the actual facts. We could not use statistics giving the actual facts because, in the first place, they are not available and, in the second place, if they were, our table in trying to give them would become unwieldy and incomprehensible. We have, in fact, tried to simplify without over-simplifying so much that the student loses touch with reality.

8. A wheat supply schedule. Table XI as it stands shows why with expansion of output the cost of growing and marketing the additional bushels necessarily increases per bushel. Some wheat could be grown and marketed at a cost of $.25 — the first fifteen bushels per acre on the two million acres of A grade land. After that more could be grown only by resorting either to worse land, or to land farther from market, or to more intensive cultivation. At a cost of $.50 or less per bushel, in addition to the 30,000,000 already pointed out, 10,000,000 bushels could be grown on the A grade land, 15 bushels per acre on the 6,000,000 acres of A′ land, or 90,000,000 bushels, and 10 bushels per acre on the 5,000,000 acres of B grade land, or 50,000,000 bushels. Altogether, then, 180,000,000 bushels could be grown and marketed at a cost of $.50 per bushel or less. Carrying such calculations through for the various costs shown in the table from $.25 up to $2 per bushel, we arrive at the following quantities of wheat that could be produced at these various costs per bushel, or, in short, we arrive at the following supply or cost schedule for wheat.

TABLE XII. WHEAT SUPPLY SCHEDULE

COSTS OF CULTIVATION AND MARKETING PER BUSHEL	BUSHELS PRODUCED
$ .25	30,000,000
.50	180,000,000
.75	435,000,000
1.00	735,000,000
1.25	1,035,000,000
1.50	1,310,000,000
1.75	1,485,000,000
2.00	1,610,000,000

9. Why consumers must pay more when quantity demanded increases. The cost of production figures in Table XII, it may be remembered, are assumed to cover only expenses of cultivation and marketing, and do not include any cost item representing the price paid for the land or for the use of the land. The number of bushels shown opposite each cost figure represents not merely the number grown at that cost, but includes all wheat grown at the lower costs preceding it in the table. For example, 435,000,000 bushels were grown at a cost of $.75, $.50, or $.25 per bushel. In other words, the figures of the right-hand column are cumulative, as statisticians would say. Costs being as indicated in this table, how much would consumers be compelled to pay for wheat? That would depend upon how much wheat they wanted. It is obvious that wheat-growers are not likely in the long run to grow wheat for a price below cost of cultivation and marketing. Therefore the costs in Table XII opposite the various quantities show the lowest price that consumers might expect to pay for wheat. If they wanted only 30,000,000 bushels, they might get them at $.25 a bushel, since that would cover all costs of production and marketing, although it would allow nothing for the use of land. But if they wanted 180,000,000 bushels they would have to pay $.50, since the extra 120,000,000 would not be grown for less, and if they wanted as much as 435,000,000 bushels they would have to pay $.75 in order to tempt wheat-growers to grow that part of the supply costing $.75. Thus the more the consumers demanded the more they would be compelled to pay, since the extra bushels could only be produced at greater and greater costs per bushel, and would not ordinarily be grown at a loss. If consumers wanted 1,610,000,000 bushels they would have to pay at

least enough to cover expenses of cultivation and marketing for the last addition to the supply, that costing $2 a bushel.

10. **Market price must equalize demand and supply.** To show more clearly how the market price for wheat would be determined under these conditions of cost, we must take into consideration the nature of the demand schedule for wheat. No one knows just what this demand schedule is. That is to say, no one knows just how many bushels of wheat the people of the United States would be willing to buy at various prices. We do know, however, both from deductive reasoning and from past market prices, that they will buy more at a lower than at a higher price, and that they will buy something like five bushels per capita at a good price, let us say $1.75 a bushel, rather than get along with less. If, however, the price were much higher they might economize and buy less, and if the price were lower they would buy a little more, but not much more, since about six bushels per capita is all they care to eat at any price. Only live-stock growers would buy more than that except for purposes of resale, and to tempt live-stock growers to buy, the price must fall so low that wheat becomes as cheap cattle and hog feed as corn. Our demand schedule for wheat would run something like that shown in Table XIII, which shows also part of our supply schedule already given in Table XII.

TABLE XIII. DEMAND AND SUPPLY SCHEDULES FOR WHEAT

QUANTITY DEMANDED	PRICE	QUANTITY SUPPLIED
1,500,000,000	$ .50	180,000,000
735,000,000	.75	435,000,000
650,000,000	1.00	735,000,000
600,000,000	1.25	1,035,000,000
575,000,000	1.50	1,310,000,000
550,000,000	1.75	1,485,000,000

With a demand schedule and a supply schedule as shown in Table XIII, what would be market price? Market price, as explained in an earlier chapter, is the price that equalizes demand and supply. If demand is greater than supply at a given price, then price must rise; if supply is greater than demand, then price must fall. In our table demand is greater than supply at the prices of $.50 and $.75 cents. But at the price of $1 supply is greater than demand. Consequently market price would have to be higher than $.75, but lower

than $1. In both our demand schedule and our supply schedule the figures are assumed to represent American demand and supply respectively. Without at this point attempting a discussion of foreign trade, we can add an element of realism to our discussion by taking into consideration the effects of a foreign demand for American wheat. Suppose that, in addition to our home demand for wheat of 650,000,000 bushels, there should be a foreign demand for 85,000,000 bushels at a dollar a bushel. That would bring total demand up to 735,000,000 bushels at a dollar a bushel, at which point it would equal the supply offered at a dollar and give the wheat-growers a market price of a dollar a bushel, instead of the lower price of, let us say, $.90 that would equalize domestic demand and supply.

11. **This year's market price depends upon this year's supply, but is a determining factor of next year's supply.** The reader might ask at this point how the market price of wheat can affect the quantity of wheat produced, since the wheat apparently has already been produced and is being offered for sale, or so it appears from our demand and supply schedule. To this we must answer that in reality the market price of any year affects, not the supply grown that year, but that of the next year. In actual practice it works out in this way. Suppose that conditions of cost are as indicated in our supply schedule, and that in a certain year growers produce and throw on the market 735,000,000 bushels, all of which must be sold on the home market. Demand would be such that it could be sold only at a price of $.75. This would discourage many growers who had produced at a loss, and if they could conveniently do so, they would turn to the production of something else, unless they had reason to hope for a better price the next year. On the other hand, if for some reason, either a short crop or an abnormal foreign demand, one year's crop should bring $2 a bushel, this would encourage great expansion in production the next year, unless growers had reason to fear that the next year market price would be lower. It must also be borne in mind that wheat is a somewhat durable product, and it may be withheld for a time from the market. The price from day to day during a season affects the proportion of the year's production offered for sale, and if the price remains abnormally low throughout the season, some will be carried over and offered for sale along with the next year's crop.

12. Questions raised by omission of land as a cost item. The reader might ask, too, why we do not include in our cost of production anything for the use of the land. Surely, land costs something! Furthermore, if land does not cost anything, or if we assume it to cost nothing, do the producers on the best land near the market, producing at a cost as low as $.25, get one dollar a bushel, the same as the high-cost producers, growing wheat on poor land far from market, or under conditions of intensive cultivation? If they do get a dollar a bushel and produce at a cost of much less, are they not making great profits that tempt them to expand and thus to increase the supply and depress price?

To answer first the question, Do all producers, regardless of cost, get the same price for their product? Yes, if one bushel of wheat is just like any other bushel, then it will sell for the same price in the same market. If it is sold in some other market the price may vary, but not more than enough to cover the cost of transportation from the one market to the other. If buyers are willing to buy 735,000,000 bushels of wheat at one dollar a bushel or more rather than go without it, then sellers having that much for sale can get that price for it. None need take less, regardless of how little it cost him to produce it. The reader may recall that this matter has already been discussed in Chapters V and VI.

Assuming for the time being that wheat producers on the good land near the market pay nothing for the use of their land, and are making huge profits selling wheat at the market price, can they expand production and thus increase their profits? Any one individual might if he could get more of that good land on the same easy terms. But if that land were all under cultivation he could get more of it only if some one else gave up some of his. Once all the good land near the market is under cultivation all the producers collectively cannot expand production under the same favorable conditions. They can expand only by farming more intensively, by resorting to worse land, or to land more distant from market. In other words, they can expand only under conditions of increasing cost. This is adding nothing to what has already been said. It is merely recalling to the reader the conditions of production. The low-cost producers can expand, but only by becoming high-cost producers in respect to the additional units they grow. We have

here a condition under which the costs of the most expensive units actually produced tend to determine the market price. Unless the market price equals the cost of producing these units, they will not be produced. Reverting to our Table XI on page 162, unless the price of wheat is as high as $1, the sixth five bushels will not be grown on A grade land, the fifth five bushels on A′ grade, the fourth five bushels on B grade, the third five bushels on B′ grade, the second five on C grade, and as for C′ grade land. it will not be used at all. Production will amount to only 435,000,000, and nobody will be able to increase output in the aggregate under a cost of $1.

To the question, Does land cost the producer anything? we answer yes. What determines the price he must pay for it, and what effect this price has on his cost of production, will be considered in the following chapter.

EXERCISES

1. Leaving out of consideration the price or rent of land as a cost, why does expansion of output in the wheat industry tend to involve increasing costs for the successive additional bushels produced?
2. What is meant by the law of diminishing returns? By the point of diminishing returns?
3. Assume that in a certain country there are just 1,000,000 more acres of each of six grades of land than the number of acres shown in Table XI. Assume that costs of cultivation and marketing are just as shown in Table XI. Then construct a supply schedule of wheat showing how many bushels would be produced at various costs from $.25 up to $2 per bushel, similar to the supply schedule of Table XII. Under such conditions of supply, approximately what price would consumers have to pay for wheat if they demanded 500,000,000 bushels? 1,000,000,000? Leave out of consideration as a cost the rent or the price of land.
4. If you are familiar with agricultural conditions in some particular section, calculate roughly the cost of producing wheat or corn per bushel, or cotton per pound on the best land; on the average run of land; on the poorest land used. Do not include as a cost the rent or the price of the land. By what means, if any, could the farmers in that section increase their output fifty per cent? Would it cost more per unit to produce the extra bushels or pounds? Why?

For "References" for this chapter see end of Chapter XI.

CHAPTER X

THE RENT AND PRICE OF AGRICULTURAL LAND

1. Conditions of cost in wheat-growing summarized. In the preceding chapter we discussed three causes of differences in the cost of growing and marketing various parts of the total supply of wheat, namely, differences in the location of the land, differences in the fertility of land, and the law of diminishing returns. In order to bring out clearly the effect of these causes of varying cost, we omitted from consideration differences in the business ability of the various producers, and the rent or the price paid for the land. We noted that these three causes operated together to increase the cost of cultivation and marketing of wheat per bushel as the total quantity produced increased. Since wheat, like other commodities, is produced for a profit and not for a loss, we concluded that consumers must pay a price high enough to cover the cost of cultivation and marketing of the most costly units produced. Otherwise these units would not be produced. We concluded also that the market price of wheat would, therefore, tend to rise as the total quantity demanded increased, since the increased demand could only be met by production at an increasing cost. In this chapter we will consider first the price of wheat land in its relation to the cost of producing wheat, and note whether or not its inclusion as a cost item will invalidate the conclusion reached that the output of wheat can only be increased at an increasing cost per bushel. Next we will consider the effect of differences in the ability of wheat-growers on the price of land and the cost of production.

2. How land differs from other producers' goods. Land used in wheat-growing is a producers' good, and its price, from the demand side, is determined as is that of any other producers' good. The maximum price a wheat-grower can afford to pay for an acre of wheat land is the difference between the value of the wheat produced on it and the other costs of production. If he pays that much for it, he will make no profit and suffer no loss. He will, of course, try to get it for less. But land, whether used for growing wheat or for other purposes, differs in important respects from other kinds of

producers' goods: (1) it is a natural resource, a gift of nature, and not man-made; (2) it is immovable, and must be used where found; (3) man can neither increase nor diminish the total quantity, although he may change its quality; (4) land of some particular kind, better fitted than other land for some particular purpose, as wheat-growing, is limited in quantity, and can generally be increased in quantity only at great expense; (5) with proper care land may be used for most purposes indefinitely, whereas other producers' goods wear out in the process of time.

3. **The amount of land remains fixed.** It appears, therefore, that the supply of land differs radically from the supply of other producers' goods, and is not affected in the same way by changes in demand and price. In fact, if we draw the line clearly between land and capital, and include under land only natural resources, and under capital all man-made producers' goods, neither the total quantity of land nor the total quantity of any particular kind is affected by demand and price. Swamp land that has been drained for wheat-growing, or filled in for building sites, has become, to the extent of the man-made changes in it, capital, or man-made goods. Even if we do not draw this quite logical line, in most cases land of given quality is fairly fixed in amount. There was about the same amount of land available for growing wheat in North America five hundred years ago as to-day, although then none was demanded for growing wheat and now some 60,000,000 acres are demanded, or enough to grow 800,000,000 or 900,000,000 bushels a year. Any changes made in land to fit it for cultivation may properly be considered as costs of cultivation. Clearing land of timber and stones differs only from plowing and harrowing and seeding in that clearing must ordinarily be done only once, while plowing, harrowing, and seeding must generally be done each year. After the lapse of many years, however, certain man-made qualities of land can often not be distinguished from natural qualities. The cleared land of Ohio may appear to the eye like the prairie land of Kansas, but the one had to be prepared for the plow by great labor, while the other was prepared for the plow by nature. If we do consider the expenses of clearing, draining, irrigating, etc., as costs of cultivation, the benefits of which are spread over many years and chargeable against an indefinite number of crops, as logically we must, and do not consider

these operations as adding to the quantity of land available, then we may say that the quantity of land available for any purpose remains unchanged. How much will be used for that purpose up to the maximum available depends upon the price of the product, the costs of cultivation, and upon the demand for that land for other purposes.

4. Rent: conditions under which there would be no rent. Taking the foregoing conditions into consideration let us note how the price of land is determined. There will be a price regardless of the fact that there is no cost of production. As already pointed out, that price will depend upon the difference between the price of the product of the land and the costs of cultivation and marketing. Just how this price is determined can be explained most conveniently by explaining how the rent of land is determined, the rent of land being the difference between the value of one crop and the expenses of cultivation and marketing. For example, if a 100-acre field of wheat yielded 2000 bushels which sold for $2500, and the total expenses of cultivation and marketing amounted to $2000, then the rent would be $500. That is the maximum sum a wheat-grower could pay for the use of the field for one year without losing money. But why is there a difference between the costs and the price of wheat, and why is there such a thing as rent? If there existed anywhere at any time a country with an unlimited amount of fertile land, all equally good and all equally near the market, and every one who desired to grow wheat had free access to all of this land he cared to use, there would be no rent. To make this matter clear, let us continue to assume that all wheat-growers are equally able, and that their costs of cultivation on the same grade of land are exactly the same. If, under such circumstances, at any given time a grower could produce 2000 bushels of wheat at a cost of $1000 and sell it for $2500 he would have a net gain of $1500. Naturally he would want to expand production and thus increase his profit. Other wheat-growers would want to do likewise, since all are making great profits. There being an unlimited amount of fertile land available, all equally good, and equally near the market, expansion would be easy, provided the other necessary producers' goods, such as plows, labor, harvesting and thrashing machines, were available. Expansion of output would inevitably bring a fall in price in accordance with the

law of diminishing vendibility until price got down to cost of production. Possibly the increased demand for plows, machines, and labor would cause these costs to increase, thus bringing price and cost together so much the sooner. At any rate, when cost and price were thus equal, no producer could afford to pay anything for the use of his land. There would be no rent. Incidentally with all producers equally able there would be no profit. All would get for their wheat just enough to pay for cost of cultivation and marketing, including in cost, as always, a fair reward for their own labor and their own capital. Such a state of affairs is, of course, fanciful. There cannot be an unlimited amount of land all equally good and all equally near the market.

Under another fanciful condition there would be no rent. If there were only a limited amount of land, say 100 acres, all equally good and equally near the market, or practically so, and not subject to the law of diminishing returns, and in the hands of a hundred competing producers, there would be no rent. Suppose that at a given time these competing producers were producing 20 bushels of wheat each, or 2000 bushels in the aggregate at a cost of $.50 cents a bushel and selling it for $1.50 a bushel. They would then be making profit and would be tempted to increase production, and thus to increase their profits. Their land not being subject to the law of diminishing returns, they could keep on producing additional bushels per acre at the same cost per bushel indefinitely, provided the prices of their producers' goods did not rise. Production would expand just as in the other assumed case until price came down to cost of cultivation and marketing. Without any agreement to restrict production, expansion would continue as long as price exceeded costs. There would then be the interesting spectacle of land prodigiously productive for which no one could afford to pay rent. This conclusion may seem absurd; it is not the conclusion that is absurd, but the assumption of a condition under which the law of diminishing returns does not operate.

5. Development of agriculture and land ownership in the United States. Let us return from this excursion into the realms of fancy to a consideration of things as they are. In the real world the amount of the best land near the market is limited, and is subject to the law of diminishing returns. But when population is sparse,

and the demand for agricultural products, as wheat, is small, all that is demanded may be produced on land practically alike in respect to fertility and distance from market. Such were the conditions in early colonial days on our Atlantic seaboard. The local demand for agricultural products was small and foreign demand was inconsiderable, since the expenses of transportation were so great that most of the European supply could be produced more cheaply at home. As demand increased, however, the most fertile and most conveniently located land could no longer produce all the grain demanded, even when cultivated beyond the point of diminishing returns. Some producers had to resort to more intensive cultivation on the old land, and others to worse land or land farther from market. The development of low-cost transportation largely offset the disadvantage of resorting to more and more distant lands farther west, and from the cost standpoint actually brought much very fertile land near the market. Nevertheless, as the total demand for wheat increased and the total quantity produced increased, great variations in the cost of cultivation and marketing developed, such as represented in the table of costs in the preceding chapter (page 162).

Naturally wheat-growers began to compete for possession of the land on which wheat could be grown most advantageously. Since all wheat of equal quality sold in the same market would tend to sell for the same price per bushel, regardless of the expenses involved in cultivation and hauling to market, all growers would tend to prefer the best land nearest the market, and none would prefer the poor land far from market. Now, it is obvious that none of the prospective wheat-growers made the land. How then would be decided the question of which of the farmers should have the use of the best land? There are various conceivable ways in which that could have been decided. The right of the first man to take possession might have been upheld, or the right of the man with the strongest arm, or the people collectively through their government might have held all the land and rented it to wheat-growers from year to year, the highest bidder being given the use of each particular field. The plan that was most extensively used by our Government was to sell the land in small parcels at a low price to settlers who agreed to use it for agricultural purposes. These settlers did not buy the

use of it by the year, but bought the land outright, getting a title to it that was good indefinitely. They could bequeath this land to their heirs, give it away, or sell it. For the most part the land was sold by the Government, not to the highest bidder, but to the first bidder. Much land that was not thus sold was given away for various kinds of services performed by private citizens. In various ways most of the land in the United States has thus passed into private hands, and the owner has the right to use it himself, and the right to exclude others from using it except for a price. In similar ways most of the land in the world has passed into private ownership, and the individual owner's claim to possession is supported by the power of his government. This little historical digression from the main thread of our argument seems necessary to explain how land has fallen into private ownership of men who obviously have no claim to it on the basis of having made it. We may now return finally to a discussion of why there is rent and how the rent for land thus privately owned is determined.

6. Calculating the rental value of wheat land. We will assume conditions of cost to be like those illustrated in our cost of cultivation table on page 162, and the demand schedule for wheat to be such that 735,000,000 bushels could be sold for $1 a bushel. Under those conditions grade A land would yield high rent — that is, the value of the crop produced on it would exceed considerably the cost of production. The rental value of such land could be calculated, by the aid of the following table, to be $15 an acre.

TABLE XIV. RENTAL VALUE OF A GRADE LAND

NUMBER OF BUSHELS PRODUCED PER ACRE	COST	VALUE OF THE CROP PER ACRE	NET GAIN, OR RENT
15	$3.75	$15	$11.25
20	6.25	20	13.75
25	10.00	25	15.00
30	15.00	30	15.00
35	21.25	35	13.75
40	28.75	40	11.25
45	38.75	45	6.25

The cost figures are calculated from the data given in Table XI. The first fifteen bushels cost $.25 each, or $3.75. The next five,

$.50 cents each, or $2.50, which, added to the cost of the first fifteen, amounts to $6.25. The next five cost $.75 each, or $3.75, which, added to $6.25, amounts to $10. The difference between the selling value of any quantity produced and the cost of producing that quantity would represent the maximum a renter could afford to pay for the use of the land. Naturally, if a man were renting the land or farming land he himself owned, he would try to cultivate up to the point which yielded the greatest net return. From the table we see that the greatest difference between cost and value of product is found when 25 or 30 bushels are produced. In both these cases, the net gain is $15 an acre. It is the maximum which a renter under the circumstances could afford to pay for the use of the land one year.

In the same way we could calculate the rental value of any other grade of land. The rental value of grade A′ land would be less because we must allow for the extra cost of $.25 a bushel of getting the wheat to market. The greatest net gain would be $8.75 an acre, obtained when either 20 or 25 bushels were grown per acre. The C grade land, poor but near the market, would yield a net return of $1.25 an acre when producing 10 bushels, but the C′ grade, poor and far from market, would produce no net return at all, and for it no renter could afford to pay rent.

7. High prices of farm products cause high rents of farm land. We may conclude from what has been said that the rent paid for the use of agricultural land is a result of the price of agricultural products, and not the cause of those prices. In other words, high prices for wheat, corn, and potatoes, etc., cause high rents, not *vice versa*. When the demand for farm products is great, and the total quantity demanded can be produced only by resorting to intensive cultivation, and to the use of land both poor and far from market, some parts of the supply are produced at great costs for cultivation and marketing. The market price that covers these costs more than covers such costs for good land near the market. The difference is rent, as just calculated. It should be noted, however, that there are certain apparent exceptions to the general rule. If, for example, a certain grade of land commands a rent of $15 an acre when devoted to wheat, and some one desires to use it for other purposes — for hay-growing, for example — but finds that the present price

of hay does not permit him to pay that much rent, he may give up the idea of growing hay. This will result in a smaller output of hay, and higher hay prices. It would seem that the high rent for land had caused the price of hay to go up. But, in the last analysis, what caused the shortage in hay and the high price of hay was the high price of wheat, which caused land to be devoted to wheat that might otherwise have been devoted to hay.

8. The price of land represents the capitalization of rent. From the rental value of land we pass logically to its selling value, which depends upon the rental value. There are two methods of calculating the selling value, or the price of land, from its annual rent, or rental value. Both are based on the interest rate, which fundamentally represents a premium on present goods in terms of future goods, or, in other words, a discount on goods becoming available only in the future. If a piece of land will produce a crop worth every year on the average $15 more than it costs to produce and market the crop, how much would one give for that land, not by the year, but to be held by himself and his heirs forever? Not an indefinite number times $15, but whatever sum one considered the equivalent to-day of an income of $15 a year indefinitely, and that would be much less than an indefinite number of times $15. Just why this is so we shall consider in more detail later. For our present purpose it may be said that people discount the future, that $15 a year from now many people would consider worth something like 5 per cent less than $15 to-day, and $15 two years from now something like 5 per cent less than $15 one year from now, and so on. For $15 a hundred years or a thousand years from now, most people would give very little. This method of calculation is long and roundabout. The same results are reached if one calculates the sum of money which, if put at interest at the rate regarded as a fair return on investments in land, will yield a sum equal to the annual rent. Thus, if a piece of land rents for $15 an acre, and 5 per cent is considered a fair return on money invested in land, then a fair price for that land would be $300 an acre, since $300 put out at interest at 5 per cent would yield $15 a year. This brief explanation leaves some questions unanswered, but these can be considered more conveniently after we have taken up the rate of interest in a later chapter.

One additional point should be noted here. Since the selling value of land depends upon its rental value, and that in turn depends upon the price of farm products, then the price of farm products is a determining factor in the price of agricultural land, and not *vice versa*. In other words, high price of farm land results from and does not cause the high price of farm products.

9. From the farmer's point of view rent is a cost of production. We are now ready to consider the question of whether or not wheat-growers on the good land near the market have lower costs of production — including under that term *all* costs involved in producing and marketing their product — than wheat-growers on the poor land far from market. We may say that if all wheat-growers have equal business ability, then they all tend to produce wheat at the same cost per bushel. The price a farmer pays for his land, whether he buys it outright, or rents it by the year, is a cost of production. Competition for the use of land among producers of equal ability would tend to make the rental value of each field just offset the advantage derived from its fertility or location. The farmer on A grade land produces 25 bushels of wheat at a cost of $10 for cultivation and marketing, and rents his land at $15. His total costs are $25. If he buys the land outright, he pays $300 an acre, which represents a cost of $15 a year if interest is 5 per cent. The farmer on C′ land, poor and far from market, grows on an average 5 bushels per acre at a cost of $1 a bushel. For such land he pays no rent, and his total costs are $1 a bushel. In short, if competition for the use of the better grades of land works out perfectly, the rental value or the selling value will always tend to equal the difference between the costs of cultivation and marketing and the price of the product, and total costs of all producers will tend to be the same. Obviously, if a farmer buys a piece of land, and afterward a rise in the price of wheat or a reduction in costs of cultivation and marketing increases the net return per acre, the rental value and the selling value of his land rise. Other farmers who buy later at a higher price in a sense have higher costs. But the first farmer may justly mark up the price of his land to a figure at which he could sell and base his calculation of costs on the higher figure. It is what he could get for his land, and not what he paid for it, that a farmer should consider when calculating his future costs of pro-

duction. The difference between what he did pay and what he could sell for represents profits on past operations, not difference between his own future costs of production and those of his neighbor who has just bought at the high price. It will make the matter more clear, perhaps, if we consider the case of two farmers, one of whom decides to buy a high-priced farm in Ohio, and the other to take a claim in western Nebraska. One gets good land near the market. The other gets poor land — poor primarily because of lack of rainfall — far from market. If they have been moved only by financial considerations and have shown equally good judgment, each ought to do equally well in growing wheat. Both ought to produce at the same cost per bushel — the Ohio farmer's lower costs of cultivation and marketing being offset by the interest on the money he has paid for the high-priced land.

10. Land not devoted exclusively to wheat. The reader may raise the point that we assume wheat land to be land that is devoted exclusively to wheat, while in practice most wheat is grown on land on which crops are rotated — the rotation consisting often of wheat, corn, and oats. This in no way invalidates any of the conclusions thus far drawn. For the sake of convenience in exposition, we have made the tacit assumption that wheat is grown on our land year after year. But the principles discussed are the same, whether land be put in wheat every year or whether it be used for various crops in turn. In practice farmers tend to put their land to the most profitable use — the use which insures the greatest net gain over costs of cultivation and marketing, not merely for one year, but, if they are far-sighted, for a long term of years. In calculating the rental value of an acre for a single year, the farmer considers the particular crop he is going to raise. In calculating the selling value, he takes into consideration the average net return that may be expected from the crops that are likely to be grown to best advantage over a long term of years.

11. Differences in ability among farmers and the rent of land. Up to this point it has been assumed that wheat-growers have equal ability, and that costs of production of all wheat-growers are the same on the same grade of land. It has been assumed, too, that the difference between these costs (not including land as a cost) and the value of the product represents the rent of the land, and that

this is the amount which renters competing for possession of the land would pay for the use of it for one year, and that the market price of the land would tend to be this annual rental capitalized at the current rate of interest. These assumptions lead to the further assumption that no renters make profits, since their costs of cultivation plus the rent they pay equal the value of their product. Likewise it has been assumed that no landowner makes profits, except through rise in land values, after he buys, since it has also been assumed that he pays for the land a sum of money which at the current rate of interest would yield a return equal to the difference between his operating costs and the value of his product. Obviously these assumptions are contrary to fact. Farmers do not all have equal ability and equal costs and come out even at the end of the year, neither enjoying profits nor suffering losses.

In practice some farmers manage things better than others. On the same grade of land some will grow more bushels at less expense than others. On our A grade land, for example, a good farmer might grow, not 30 bushels of wheat at a cost of $15, as our table of costs assumes all farmers do, but 35 bushels at a cost of $12; the ordinary run of farmer might produce 30 bushels at a cost of $15, as assumed in the table; and the very poor farmer, the shiftless fellow, might produce only 20 bushels at a cost of $18. Besides these three grades of farmers, there might be many intermediate grades varying in ability to obtain high yields and to keep down costs.

Now, since the maximum a farmer can afford to pay a year for land is the difference between his costs of cultivation and marketing and the value of his crop, these various grades of farmers could afford to pay various sums for the same grade of land. The question might then be raised, If rent represents the difference between costs of cultivation and marketing and the value of the crop, or the amount which renters can afford to pay for the use of land, which class of farmers are we considering — the best farmers, the poorest farmers, or some intermediate grade?

Another similar point must be considered. Farming is essentially a small-scale industry, because of the difficulty of properly supervising the operations on a large farm. Let a farmer, whose costs per acre are $20 less than the value of his product, attempt to double the size of his farm and he finds his costs per acre growing larger, or

the value of his crop per acre growing smaller, or both. More of the work must be turned over to hired hands, who, on a large farm, cannot be kept under the eye of the master. Time is wasted. Cultivation becomes careless. Harvesting is done in a haphazard way — hay gets rained on and damaged, grain is left in the field to rot. Fences are not kept up, the cattle get into the fields, damage the crops, and die from overeating. Farm horses and other farm equipment are not handled with care, and this involves heavy expense to the owner. Obviously, therefore, a farmer cannot pay so much rent or so high a price for additional acres as he can for the first 100 or 200 acres of land.

It follows from the foregoing discussion that there may be said to be a demand schedule for farm land — various quantities of a given grade being demanded at various rentals or prices.

There is also a supply schedule for land of any given grade — the various quantities that will be offered for rent or sale at various figures. The rent of land of any given class settles at the amount per acre that equalizes demand and supply. The price of land per acre tends to be the capitalized value of the rent, or it may be said to settle at the amount per acre that equalizes demand and supply.

12. Demand and supply of land and rent. In a sense the demand for land may be said to consist not merely of the total quantity which people without land are willing to rent or buy, but to include also the quantity of land that those already in possession are willing to retain at existing rentals or prices. But in the following analysis we are concerned only with the quantity demanded at a given rental or price by those not already in possession. That is to say, we are using demand in the ordinary sense of market demand.

In a sense, too, the supply of land may be considered as being the total quantity in existence, which never changes. But the quantity that will be offered for rent or for sale varies with the market price. At a given price a farmer who already owns 100 acres would buy 100 acres more, but at a somewhat higher price he would sell what he had. A shift in price will switch him from the demand side to the supply side of the market. Similarly, at a given rental a certain man might offer his farm for rent, but at a lower figure he might retain it for his own use.

Understanding by the demand for land the quantity demanded by

those not already in possession, and by the supply the quantity offered for rent by the owners, let us note how the rent of land is determined, using Table XV for purposes of illustration.

TABLE XV. DEMAND AND SUPPLY SCHEDULES OF A GRADE LAND

NUMBER OF RENTERS DEMANDING FARMS	ANNUAL RENTAL	ACRES DEMANDED	ACRES SUPPLIED
10,000 A grade	$20.00	2,000,000	14,000,000
20,000 A and B grade	18.00	5,000,000	11,000,000
30,000 A, B, and C grade	16.00	8,000,000	8,000,000
40,000 A, B, C, and D grade	14.00	11,000,000	5,000,000
50,000 A, B, C, D, and E grade	12.00	14,000,000	2,000,000

It is assumed in Table XV that 2,000,000 acres of A grade land would be demanded by 10,000 A grade renters, at $20 an acre, because these renters on the basis of previous experience believed that, with an even break of luck in the way of weather conditions and at existing costs and market prices of farm products, they could clear $20 an acre over and above costs. Costs, be it understood, include here fair wages for the renters' own labor and interest on their own capital invested in farm equipment, etc., but not rent for the land. The quantity of land assumed, 2,000,000 acres, amounts to an average of 200 acres for each of the A grade renters. At $18 the A grade renters would demand some additional land, and 10,000 B grade renters would come into the market, so that a total of 5,000,000 acres would be demanded at that rate. At lower rentals, still more land would be demanded, until, at the low rate of $12 an acre, 14,000,000 acres would be demanded, the assumption being that E grade renters could expect to clear not more than $12 an acre on the same grade of land on which A grade renters could clear $20 an acre on their first 200 acres.

Under the conditions assumed in Table XV, the rent of A grade land would tend to be $16 an acre — the amount that equalized demand and supply, 8,000,000 acres being demanded and supplied at that rate. Paying this rent the A grade farmers would find their total costs including rent to be $4 an acre less on their first 200 acres than the value of their product, and they would, therefore, enjoy a profit of $4 an acre. The B grade farmers would make a

profit of $2 an acre, and the C grade farmers would just make expenses. The profits of the A and B grades of farmers would represent the reward for superior managing ability, rather than reward for risk. Their reward for risk would come if the season were unusually favorable or prices higher than normal, or costs lower, and this would tend in the long run, for the farmers in the aggregate, to be offset by losses resulting from bad seasons, low prices, or high costs.

Under the conditions assumed D and E grades of farmers would want to rent no land at as much as $16 an acre, because such high rent plus their other costs would bring their total costs above the price of their product and involve them in loss. Frequently, however, farmers overestimate their own ability to make money and demand land at a higher rental than they can pay without suffering loss, or they may rent land at a figure that their best judgment tells them is too high simply because they do not know what else they can do, and hope that the crop may be unusually good, or prices unusually high. When disappointed in this hope, they find themselves involved in loss and unable to meet their bills. Such farmers are constantly in process of being weeded out, or at least of migrating from one section of the country to another where they are not yet known as failures and can secure credit for further operations.

As indicated, the rent of land tends to equal the rate that what may be called the marginal producer can afford to pay for it rather than go without it, the marginal producer being one who can barely make expenses and who just barely manages to remain in business. How far down the scale of ability the marginal producer will be depends upon how numerous farmers are relatively to the amount of land available. It should be noted that in the supply schedule of Table XV, it is only the amount of land offered for rent that varies with the rent, not the total quantity available for farming, which remains substantially the same. A grade land will not remain idle if not rented out. It will be farmed by the owner. If the total quantity is 14,000,000 acres and only 2,000,000 are offered for rent at $12, then it may be assumed that the other 12,000,000 acres are being used by the owners, who would rather farm the land themselves than rent it out at such a low rate. This brings us back

to the statement made on page 180, that in a sense the total demand for land includes the quantity that those already in possession are willing to retain at a given rental or price as well as the quantity demanded by renters or buyers.

13. Demand and supply and the price of land. As has already been stated in an earlier section of this chapter, the price of land tends to represent the capitalized value of the rent. If we assume the current rate of interest to be five per cent, then the price of land will be twenty times its rental value, and the A grade land of Table XV will sell for $320 an acre. The A grade farmer, who could clear $20 an acre from such land, could afford to pay $400 an acre for it and, from farming it, secure a fair return on his investment, five per cent, but no profit. If, however, the land is so abundant relatively to the number of farmers that what C grade farmers can afford to pay sets the price, at $320, then A grade farmers can buy at a price that permits them to gain not only a fair return on their investment, but something in the way of profit for superior farming ability. In the United States at least as many farmers acquire their land by outright purchase as by renting, and in the higgling of the market for farm land it is what the marginal buyer can pay that determines the price rather than capitalization of the rent the marginal renter can pay. This is, however, not an important point, since the two figures tend to be the same, resting upon the same basis.

The rental value and the price of all grades of land are determined just as the rental value and the price of A grade land, the rent or the price in each case being such as to equalize the quantity demanded and supplied, and leaving the marginal producer on each grade of land no profits.

Some land is so poor or so far from market that the marginal producer would find his expenses of cultivation and marketing just equal to the value of his crop. For such land he could pay neither any rent nor any price. Better farmers might be willing to pay a small rental or price for such land, but its value would be set by what the marginal man could pay, and it would therefore yield no rent and bring no price — that is to say, the land bare of improvements would not. Something might be paid for house and barn, orchards, fences, and the like.

14. Marginal producer, marginal land, and marginal bushels. In speaking of the marginal producers we have in mind the lowest grade of farmers who at existing rentals or prices can rent or buy a given grade of land and make expenses, including their rent, or interest on the price paid for the land. Such marginal producers are found on all grades of land from the very best to the worst, but more are likely to be found on the worst or cheapest land than on good land, because they are not likely to accumulate enough money to buy good land. When they are found on good land, except as renters, it is probably because they have inherited money or have had a run of good luck. In a sense the good farmer who holds too much land to farm well is a marginal producer on part of his land. On his excessive holdings he barely makes expenses.

Marginal land is land on which the marginal producer in the long run just manages to cover costs of cultivation and marketing, and for which he can pay nothing in the way of rent or price at the existing level of prices of farm products and costs of production. It may be marginal primarily because of its low degree of fertility, or because of its distance from market, or because of a combination of both of these factors. On such land an exceptionally able producer may make profits in the long run, and the marginal producer may seize profits in an exceptionally good year, as when he is farming such marginal land in western Kansas in a season of unusually ample rainfall.

In the foregoing discussion we have been calculating the rental value and the price of land on the basis of existing prices for farm products. This market price, as we have already indicated in the case of wheat, must cover the costs of cultivation and marketing of the bushels produced on the marginal land, or the costs of the last few bushels extracted from the better grades of land by intensive cultivation. We must here modify this statement by adding that market price must cover the costs of *the marginal producer on the marginal land* — the costs of the least efficient producer who manages to stay in business on the no-rent land. The more wheat consumers demand, the farther out the margin of cultivation must be pushed and the greater must be the number of farmers to supply the quantity desired, and the greater becomes the cost of producing the additional bushels. Unless consumers are willing to pay a price that

covers these costs of the marginal bushels, the marginal bushels will not be produced by the marginal farmers on the marginal land. The higher the price of wheat, the more it pays to farm intensively the better land, and farmers of every grade are likely to increase the intensity of cultivation of their land up to the point where extra bushels cost as much as they bring on the market. We may then speak of two margins of cultivation: First, the extensive margin — the cultivation of land so poor or so far from market that it barely pays the marginal farmer. Second, the intensive margin — the cultivation of better grades of land up to that degree of intensity beyond which extra bushels cost more than they bring.

If there were an unlimited amount of A grade land, equally good and equally near the market, there would still be differences in cost of production unless all the farmers were of equal ability. There would still be marginal producers, and marginal bushels produced by the marginal producers would set the market price. The higher grade of farmers would make profits. There would be no rent and no land would be cultivated beyond the point of diminishing returns. All differences in costs would be the result of differences in the ability of farmers.

If we include rent as a cost, or interest on the price paid for land as a cost, then the costs of all farmers having equal ability tend to be the same. Differences in cost then tend to result, not from differences in land, but from differences in the ability of farmers. Rent acts as an equalizer; added to other costs, it tends to make the costs of all producers of equal ability equal.

15. Customary rent. Although the rental value of any class of land is determined primarily by the anticipated difference between the value of the crop and the costs of producing and marketing the crop, and is worked out on the principle of marginal vendibility, so that more efficient producers make a profit over and above rent and other costs and less efficient producers make no profit and even suffer loss, it should be clearly understood that other factors enter into the determination of the rental value of land. Rental values are often much affected by custom. In the case of contract rent — that is, in cases in which the land owned by one man is rented to another — the agreement between the owner and the renter or tenant is often made on some free-and-easy basis, as that the rent shall be one third

or one half of the crop. Such rents sometimes become customary in a community, and land of various degrees of fertility rents on the same basis. In such cases either the owner of the better land fails to get the full economic rent or the renter of the poor land pays too much. For example, Smith rents from Brown twenty acres of rich wheat land and from Jones twenty acres of poor wheat land, and agrees in both cases to give one third of the crop as rent. His costs of cultivation and marketing will be about the same in both cases, let us say $10 an acre. But from the Brown twenty he gets 600 bushels and from the Jones twenty only 300. After paying the third of the crop as rent, he has left from the one field 400 bushels and from the other field only 200. If he gets $1 a bushel he has a profit, after paying costs of production, of $200 on the Brown twenty, and of nothing on the Jones twenty. If Smith had lived in a farming community in which land is rented for cash and where there is keen competition among renters for possession of the wheat land, he would have paid considerably more for the use of the good land than the value of one third of the crop, and perhaps less than the value of one third of the crop for the poor land. If in this community competition for land had been so severe that farmers of Smith's ability would have had to pay rents so high that they could make no profits, we may assume that he would have paid about $20 an acre rent for the good land, and only $5 an acre for the poor land, that representing in each case the difference between the value of the crop and the cost of production.

Custom, of course, does not affect the rental value of land in the sense of the difference between the value of the crop and the costs of production on land farmed by the owner himself. If such a farmer is assumed to be a no-profits farmer, then his rent, or income from his land, just equals the difference between his costs and the value of his crop. This difference is what economists commonly call economic rent, as distinguished from contract rent, the case discussed in the preceding paragraph. If the owner rents his land to another for less than the net gain he might himself realize by farming it, then the contract rent is less than the full economic rent. There is a strong tendency, however, for owners of land to get all they can for the use of their land, and the influence of custom as opposed to cold-blooded business seems to be weakening in the United States.

16. The price of land may be more or less than capitalization of rent at the current rate of interest. Although the tendency is for the selling value of land to represent the rental value capitalized at the current rate of interest, as already explained, several other factors enter into the determination of selling value. These can be explained most readily by means of examples. John Smith, a farmer of high efficiency, is in the market for a farm to serve both as a business enterprise and as a home for his growing family. He finds one farm with a rental value of $10 an acre, in a good neighborhood with many social advantages, and another farm in another neighborhood of a very unsatisfactory kind, but this farm has a rental value of $15 an acre. That is, Smith may calculate that on the one he could clear over and above all costs and a small profit for himself $10 an acre and on the other $15 an acre. He finds that each can be had at $200 an acre, which represents the full rental value of the first capitalized at five per cent, but only two thirds of the full rental value of the other. If he buys the first he can count on covering costs of production, a five-per-cent return on his investment, and a small profit for himself. If he buys the second, he can clear much larger profits. In fact, if he bought the second on the same basis as the first, he could afford to pay $300 an acre. Nevertheless, he may buy the first, taking into consideration social advantages as well as pecuniary gains.

Let us take another case. James White, in competition with other buyers, pays $300 an acre for a farm on which it is obvious that he cannot clear more than $10 an acre above costs. This will yield him only three and one third per cent on the price paid, which represents not only no profit, but not even a fair rate of interest on the investment. The reason he does this is that he foresees, or thinks he does, a great rise in the price of farm products which will greatly increase the rental value of the land. The price he pays represents, then, the capitalized rental value of the land in the future.

During the World War the price of corn rose much more rapidly than costs of production, and the rental values of corn land shot up rapidly. The people in a certain corn-growing county deluded themselves into thinking that these high rental values were permanent and, competing with one another for possession of the

land, bid it up to fabulous prices; as high as $600 an acre. After the war the price of corn dropped, and with it the rental value of the land. But the buyers at high prices may stubbornly refuse to acknowledge the fact that the land is not worth what they paid for it, and hold on, refusing to sell at prices that represent a fair capitalization of its present rental value.

Various other factors may influence the selling value of land; but it should always be remembered that the dominant influence is the rental value, and that land prices not based on a fair capitalization of the present rental value or of the future rental value, conservatively estimated, are to be viewed with suspicion and will not be paid by the wary. In the next chapter the price of land will be considered further.

EXERCISES

1. How does the total amount of capital, labor, and land in the United States at the present time compare with the total amount of capital, labor, and land, respectively, one hundred years ago?
2. What is meant by the rent or rental value of land? by the price of land? Is there any relation between the price of land and its cost of production? Why, or why not? By what right do the present owners of land in the United States hold their land?
3. Assuming all farmers to be equal in ability, what determines the rent of land of a particular grade? What determines its price?
4. Assuming all farmers to be equal in ability and to have available an unlimited amount of very fertile land all equally good, and equally near the market, would the land be worth anything? Why, or why not?
5. Assuming that there were in the United States just 1000 farmers all equally able, and just 100,000 acres of land all equally good, owned in equal lots of 100 acres by these 1000 farmers, and not subject to the law of diminishing returns, and assuming that the farmers were all equally near the market and competing with one another to supply the great demand for wheat, would the land be worth anything? Why, or why not?
6. In Section 6 and Table XIV it is explained how the rental value of A grade land may be calculated. Using the same method calculate the rental value of B grade land, assuming the price of wheat to be $1 a bushel. (Consult Table XI, page 162.) Having found the rental value of B grade land, calculate its price, assuming its price to represent its rent capitalized at five per cent.
7. Including the rent or price of land as a cost, do farmers on A grade land have lower costs than equally able farmers on C grade land? Why, or why not?
8. If costs of production of farmers of equal ability are equal on all grades of land when rent or price of land is included as a cost, is it matter of indifference to the country whether most of the cultivated land is A grade land and only a little of it C grade land, or vice versa? Why, or why not? Note

that in either case the price of farm products will be determined by cost of cultivation and marketing on the C grade land.

9. If a farmer is buying land to farm, can he afford to pay as much for the second 100 acres as for the first, as much for the third as for the second, and so on indefinitely? Can an inefficient farmer pay as much as an efficient farmer for his first 100 acres? Do your answers indicate that there is a demand schedule for farm land of a given grade? Why, or why not?
10. What is meant by "marginal land"? by "marginal farmer"? by "marginal bushels"?
11. Taking into consideration differences in ability among farmers, how is the price of wheat determined? the rent of wheat land? the price of wheat land?

For "References" for this chapter see end of Chapter XI.

CHAPTER XI

INDIRECT COSTS IN AGRICULTURE

1. Conditions of demand and supply of land summarized. In the last chapter it was pointed out that land used for business purposes is to be considered a producers' good, and that from the demand side its price is determined, as is that of any other producers' good, by marginal vendibility. The marginal vendibility of land of any particular grade represents the price that the no-profits producer is able and willing to pay for it. What he is able and willing to pay rather than not have the land is the difference between the value of the product and his other costs of production. Since land used for some purposes cannot be worn out, as when used for building sites, and for most purposes can be made to last indefinitely if used with care, the value or price of land must be considered from two points of view — the price that will be paid for its use one year and the price that will be paid for it for all time. The first is very simple, and represents, as has been indicated, the price that the no-profits producer is able and willing to pay for the use of it one year. This is called its "rental value" or "rental price," or, more briefly, its "rent." The price that will be paid for it for all time may be called its "selling price" or, more briefly, its "price" to distinguish this value from its rental value. Ordinarily economists use the shorter terms "rent" and "price" to indicate respectively the amounts paid for its use one year and the amount paid for it for all time. The price, as has been explained, represents the capitalized rent, primarily, although other factors besides rent may enter into the determination of the selling price.

But while land is like any other producers' good from the demand side, from the supply side it differs radically from man-made producers' goods, as explained in detail in the last chapter. In brief, land is fixed in quantity. There has never been materially less and there will never be materially more than there is to-day. Furthermore, it differs in quality and location, and the quantity of any particular quality and location is limited. Naturally at the beginning

of agricultural development in any country farmers tend to use the land that yields the greatest return with a given expenditure — normally the most fertile land, or the most easily cultivated land nearest the market. As the demand for agricultural products increases, all that is demanded can no longer be produced on this most desired grade of land. If market prices of agricultural products because of the increased demand rise higher, farmers will cultivate worse land and land farther from market, and they will cultivate the better grades of land beyond the point of diminishing return. But whichever of these three methods of increasing output is resorted to, it inevitably means an increase in the costs of production over and above the costs of producing the smaller supply on the better land, near the market, as described in detail in Chapter IX. Market price must cover the costs of growing these more costly bushels and therefore more than covers the cost of the less costly bushels. Producers, therefore, compete for possession of the most favored land, offering to rent it by the year, or to buy it outright from whoever owns it at the time. This has all been explained in more detail in Chapter X. The greater the demand for agricultural products becomes, the more necessary it becomes to resort to the use of low-grade land far from market and to more intensive cultivation of the better grades of land, and the greater becomes the spread between the costs of cultivation and marketing of the most costly bushels and the least costly bushels. Consequently, the higher becomes the rent and the price of the better grades of land. Now, when the price of any man-made good rises, it is likely to rise above cost of production, and producers of it enlarge output and increase the supply, and thus check the rise in price. But the rise in the price of land cannot thus be checked. Land tends to keep rising in price indefinitely if the demand for its products keeps on rising. Always the rent of a piece of land tends to be the difference between the cost of producing a given crop on it and the cost of producing the same quantity of that crop on the poorest land in use, or on poor land far from market, or by more intensive cultivation at great expense on the better grades of land. As this difference increases so rent increases, and as rent increases, so the price of land tends to increase. Anything that increases the spread in costs of production between the most expensive units produced and the least expensive units increases the

rent and the price of land, and anything that checks the spread or narrows it tends to check the increase in rent or to reduce it.

2. Factors tending to cause a rise in rents. Let us note now some of the causes that tend to increase the difference between the costs of cultivation and marketing of the most expensive and of the least expensive units produced. The natural increase in population brings an increase in demand for food products that must be satisfied, and also an increase in demand for fibers for clothing, such as cotton, wool, flax, and hemp, and for other agricultural products. Year by year the quantity of these various products consumed grows larger and larger for the world as a whole and for most countries, and year by year for this reason rents the world over tend to rise. This is the most important, the most persistent, and the most compelling cause of rising rents and rising land prices. There are various minor causes. A rise in the general level of commodity prices tends to raise rents and land prices. For example, if the prices of all other producers' goods except land double, then the cost of producing farm products on all grades of land tends to double. If the most expensive bushel of wheat costs $1 to produce, and the least expensive $.25, then after costs have doubled the most expensive costs $2 and the least expensive $.50. The spread has been doubled, increasing from $.75 to $1.50. It follows, therefore, that land which yielded a rent of $5 before would now yield $10, and land which yielded $10 would now yield $20. With the rent of land doubled, the price of land would tend to double also. If the rise in price of the product should be greater than the rise in costs of production, then the rise in rent and the price of land would be accentuated. For instance, if costs should double, but if the price of the product should by reason of extraordinary demand treble, then rents would rise to an astonishing height. For example, if an acre of wheat land produced 30 bushels of wheat worth $1 a bushel at a cost of cultivation and marketing of $15, and yielded a rent of $15, then with wheat at $3 and costs doubled, it would yield $90 worth of wheat at a cost of $30, and would yield a rent of $60. With its rent capitalized at five per cent, the land would have been worth $300 and would have become worth $1200. Such a condition is likely to come about only occasionally, as in war-time, and is not likely to last over a long period of time. But a period of rising prices during which rents and costs

go up more or less in unison may extend over many years, as in the United States from 1900 to 1914.

3. **Factors tending to cause a fall in rents.** The factors tending to increase rents do not act without opposition. There are counteracting factors which check the rise in rents and sometimes bring about a fall. One of these is improved methods of transportation, such as represented by the railroad and steamship. These in effect increase the quantity of good land near the market, not in a physical sense, of course, but from a cost standpoint. For example, before the opening of our West by means of the railroads the price of agricultural products in New England had been increasing because the increasing demand had made it necessary to grow some parts of the supply on very poor land, or by intensive cultivation of good land, or on land so far from the market that transportation costs were quite heavy. Under the circumstances the better land nearer the market commanded good rents. But when the railroads reached into the fertile States of the Mississippi Valley and by low rates gave the fertile land of the West access to the New England market, the price of farm products was forced down. The costs of cultivation and of transportation from the Western land were less than the old market price. As a result rents and the price of land in New England fell. Cheaper trans-Atlantic transportation for similar reasons caused a decline in the rental value and selling value of land in England and other European countries in the nineteenth century. Such a check on rents can be only temporary in nature and not universal in extent. The fall in rents in Europe and our Eastern States was partially offset by a rise in rents in the West, where much land was soon yielding crops whose market price exceeded costs of cultivation and transportation to market. It is possible that the opening-up of the equatorial belts of South America and Africa, when science makes possible the development of agriculture in the tropics, will tend to check the rise in rents just as did the opening of our own West and the agricultural lands of the Argentine, Australia, and Canada.

4. **General decrease in costs of cultivation tends to cause a fall in rents.** A general decrease in the costs of cultivation on good land and poor land alike tends to cause a fall in rents. This may result either from improved methods of cultivation, or from a fall in the

general level of commodity prices. If, by means of labor-saving machinery, it becomes possible for one man to grow as much wheat as three or four grew before, and if this machinery can be bought at low prices because it is produced at low cost in highly efficient manufacturing plants, then the cost of producing the marginal or highest-cost bushels, which are the price-determining bushels, is much reduced, and this reduces rents even if there is an equivalent reduction in the costs of growing the less expensive bushels. For example, if the costs of cultivation of a field of poor wheat land had been $200, and the yield had been 200 bushels, while with the same costs a field of fertile land yielded 400 bushels, and if the price of wheat had been $1 per bushel, just enough to cover costs of production on the poor land, the rent of the good land would have been $200 for the field. If costs, now, were cut in half, the costs of growing wheat on the poor land would be just $100, and on the good land $100. Assuming that the price of wheat as before just covered cost on the poor land, then the price would be $.50 a bushel, and the value of the crop on the good land would be $200. Its rent would then be $100, just half of what it was before.

Substantially the same results in dollars would be reached if there were a general fall in commodity prices and wages. Costs of cultivation then too might be cut in half, although not as a result of improved methods of cultivation. Such a fall in commodity prices might be the result of a decrease in the quantity of money. It would represent an increase in the value of the gold dollar, which would then buy more of everything than before. A fall in the rental value of land from such a cause would in some cases leave the landowner no worse off than before, since, although his money income were cut in half, it would buy just as many goods as before, assuming that all commodities had been equally affected by the fall in prices. But in some cases such a fall in rental value would be disastrous to the farmer, as we shall note below.

5. Temporarily a rise in costs may cause a fall in rents. Somewhat paradoxically a rise in the costs of cultivation may sometimes cause a fall in rent, although in the preceding paragraph it was explained that a fall in costs causes a fall in rents. This is likely to happen only under extraordinary circumstances when there are violent price changes, as during a war. During the years following the

World War, American farmers found their costs increasing rather than decreasing — their costs consisting primarily of manufactured products and labor. Manufactured products were high in price and workmen could find employment at high wages in cities. On the other hand, the prices of farm products fell sharply because the output had been increased during the war, and after the war foreign demand for American farm products declined. Naturally the difference between the value of the crop and the cost was reduced, and in many cases wiped out, not merely on the poor land far from market, but even on the better grades of land. Such a condition is abnormal and cannot last indefinitely, although it may last for years through the operation of the law of indirect costs. Eventually the higher costs of cultivation, if they persist, will result in higher prices of farm products, and consequently in higher rents than before on the better grades of land, as explained in Section 3 of this chapter.

6. Rising rents cause land speculation. On the whole the factors tending to cause rents to rise are dominant. Temporarily they may be vanquished by the opposing factors, which cause rents to fall, but in the end they reassert themselves. They are the factors that govern in the long run. The others are merely the opposition party — the outs that occasionally get in. In the United States particularly the general tendency has been for rent and land prices to rise on account of the rapidly growing population. People have got into the habit of expecting them to rise, and as a consequence they have got into the habit of speculating in land — of buying it with the idea of selling sooner or later at a good profit. This habit has had important effects on agriculture in the United States, not altogether happy. Since most land-buyers expect land to rise in price because they anticipate a rise in rental value, land has come to be bought and sold on the basis of anticipated rental value rather than on the basis of its actual rental value, and generally the price paid is higher than the present rental value justifies. So we find farmers complaining that they do not get enough for their crops to yield them a fair return on their investment, and truly we often see that the yield on the investment is very small — less even than the yield on practically safe government bonds. To a large extent the very farmers that complain are among the group of speculators that have bid up the price of land out of proportion to its present income-

yielding capacity. But many farmers are the victims of circumstances. If they want to farm they must become speculators in land against their will, unless they prefer to remain tenant farmers. They must buy land at prices so high that not only are profits for the time being out of the question, but perhaps even a fair return on the investment and fair wages for their labor. They may be compelled to produce for years at a loss, with the hope of being in the end able to sell their land at a profit large enough more than to offset their temporary loss.

For a similar reason much of our land was farmed by homesteaders for many years at a loss, although they paid practically nothing for it. The crops they produced sold for less than cost of production, including in cost fair wages for their labor, such as they could have earned as mechanics or even as day laborers. They were willing to make temporary sacrifices in the hope of eventually being the owners of valuable rent-producing land.

7. Farm-owners' costs are mainly indirect. Although the rent and the price of land are the result of the market price of agricultural products, and are what they are because producers in the aggregate, taking into consideration the price of the product and other costs of cultivation, force them to their existing levels in the competitive struggle, nevertheless no one producer determines the market price of land. He must take it as he finds it, like any other producers' good. If he farms, the land he uses becomes one of his costs of production. If he rents his land by the year from the owner, his rent may be considered just an operating cost or direct cost like the labor he hires, or the supplies he buys each year. But if he buys the land outright, his land becomes an indirect cost, and if he buys high-priced land an exceedingly important one. Writers frequently speak of indirect costs as if they existed only in connection with railway transportation and manufacturing by the machine process. But they are probably nowhere more important than in farming on high-priced land. It is the presence of indirect costs that accounts for much of the distress and political unrest in the agricultural States during periods of agricultural depression. Indirect costs, it will be remembered, are costs which within the limits of existing plant capacity do not vary with the volume of output, and which tend to continue even if business operations are suspended, unless the pro-

ducer decides to quit altogether and sells his plant for what he can get, usually at a great sacrifice. For a more detailed discussion of this point the reader is referred to Chapter VII, Sections 10–12.

The costs of the farmer who owns his land may be grouped roughly in four classes. First, a fair rate of interest on the price paid for his farm, including with the land all permanent improvements, such as drainage, fences, orchards, and farm buildings, with the possible exception of his house, which represents consumers' goods rather than producers' goods. Second, a fair rate of return on investments in farm equipment, such as machinery and tools and horses, and an allowance for depreciation of this equipment. Third, taxes and insurance on all farm property, except possibly the house. Fourth, cost of hired labor, and current supplies, and a fair return for his own labor. The first three groups represent mainly indirect costs which do not vary with the extent of operations, once the farmer has made his commitments. The fourth group consists mainly of direct costs. They vary with the extent of operations, and tend to come to an end if operations are suspended.

8. The farmers' indirect costs when prices fall. The indirect costs of American farmers who own and cultivate a quarter section or more of high-priced land such as is found in Illinois, Iowa, Kansas, or any other good agricultural States, may easily exceed two thirds of their total costs. For instance, a 160-acre farm at $250 an acre represents an investment of $40,000, and represents an indirect cost to the owner of $2000 a year, if one allows five per cent as a fair return on the investment. Add to this other items of indirect cost, as depreciation of farm equipment, taxes, insurance, and the like, that must be met whether or not the land is cultivated, and the total easily rises to $2500, which may be fully twice the cost of labor and current supplies and other direct costs for the year.

As already explained the price of farm land in the United States normally tends to represent the capitalization, not merely of its present rental value, but of its anticipated rental value. People are so accustomed to rising land prices that competition for possession tends ordinarily to keep prices ahead of rents, and to make it difficult for farmers to gain a fair net return on the investment. During periods of rising commodity prices, or a rising price level, the net return to farmers increases more rapidly than at other times, rental

values rise, selling prices rise, and a speculative boom develops in farm land which carries the selling price up to levels not justified by existing, and not even by prospective future, rental values. Farmers who buy land at such periods of inflated prices assume a tremendous burden of indirect costs. During and immediately after the World War, when wheat and corn were both selling above $2 a bushel, and other farm products at similarly fancy prices, the difference between costs of cultivation and the value of crops per acre became astonishingly great in many instances. A wheat crop of 40 bushels per acre, worth $80, might be produced at a cost per acre of perhaps $20, and leave a net gain or rent of $60 an acre. Under the circumstances, it was not surprising to see a land boom which carried the selling price of good corn and wheat land in some cases above $500 or $600 an acre, and which tended at least to double land values over wide stretches of the country. Much land changed hands at these prices and hundreds of thousands of farmers were committed to an investment in farm lands representing indirect costs far above the normal, and rising in extreme cases to $30 or $40 an acre.

Unfortunately for the buyers of land during such periods of inflated prices, a period of rising commodity prices is normally followed in due course of time by a period of falling prices, as one can learn by reading economic history. When prices fall, part of the farmers' costs fall also, but only his direct costs, representing such items as labor, current supplies, and so on. But indirect costs remain the same, and these may involve many farmers in ruin.

Suppose, for example, that a certain farmer had paid $300 an acre for a 200-acre farm, or $60,000, on the assumption that it was cheap at the price under the circumstances. The circumstances were these: The value of the wheat and corn that could be produced on this farm at existing prices would be about $9000 a year, and the costs of cultivation and marketing not more than $3000. The net gain of $6000 would represent ten per cent on the $60,000 investment. Suppose that the farmer had borrowed $35,000 of the purchase price at eight per cent, giving a mortgage on the farm as security for the loan. Suppose that he had become involved in other debts for farm equipment and incidentals amounting to $3000, half of which had to be paid within a year.

Suppose now that the prices of wheat and corn, his sole money

crops, fell to half, so that the total value of his crops was only $4500 instead of the anticipated $9000. Even if his expenses of cultivation and marketing fell to half also, or to $1500, the net gain he realized would be only $3000 instead of $6000. But the interest on his mortgage would not fall. It would still be eight per cent on $35,000, or $2800 a year, and this sum, together with his current debts of $1500 falling due, would be more than he could pay. Only by leniency on the part of his creditors could he escape bankruptcy. Even if he did escape bankruptcy and the loss of his farm, his indirect costs would remain as a crushing burden and keep him in a precarious financial condition for the rest of his days or until another rise in the price level brought rising rentals again and another land boom.

One of the characteristic features of the economic history of the United States has been the more or less chronic discontent of the farmers with the inadequate return they enjoy on their investments in land and for their labor. In a period of falling prices following a period of rising prices and a land boom, hundreds of thousands who have bought high-priced land heavily encumbered with mortgages suffer financial failure. Millions of others find their crops yielding only an insignificant return on their investment in land. Then agricultural discontent rises to the maximum, and the farmers turn to politics to find a remedy for their ills, most commonly advocating some ill-advised legislation designed to raise artificially the price of farm products. On this subject more will be said in our chapter on "Problems of Agriculture."

EXERCISES

1. Why is there a persistent tendency for the rent of land and the price of land to rise? What factors may cause a temporary fall in rents? What factors may cause an abnormal rise in rents?
2. Why must the farmer who wants to own his farm speculate in land even against his better judgment? Why does the persistent tendency of land to rise in price make it difficult for farmers to realize a fair return year after year on their investment in farm land?
3. Suppose that the rent of a 100-acre field in a given year was $5 an acre. Suppose that the rent then rose $1 an acre each year for the next ten years, then rose further $5 an acre each year for two years, then fell $6 an acre each year for two years. Suppose that the field was sold at the end of every second year at a price representing that year's rent capitalized at five per cent. Calculate the price paid and received for the land by each successive owner.

4. In your own section of the country has the rent of farm land fluctuated in recent years? Has the price? Have the two gone up and down together?
5. Classify a farmer's costs of production. Why are farmers' costs of production mainly indirect?
6. Which farmer has the higher indirect costs per unit of product, the one owning very good land, or the one owning very poor land? Why?
7. When there is a sharp fall in commodity prices does the income of the farmer fall? Do his direct costs fall? Do his indirect costs fall? Why or why not?
8. Suppose that a 100-acre field will produce 20 bushels of wheat per acre at a cost of cultivation and marketing of $10. What will the field tend to sell for when wheat is $1 a bushel, assuming the price of land to be the rent capitalized at five per cent? What will it tend to sell for when wheat is $2 per bushel? When wheat is $.75?

REFERENCES

I

Callender, G. S. *Selections from the Economic History of the United States*, chapter 13 (on "Public Land Policy").
Carver, T. N. *Distribution of Wealth*, chapter 5.
Clark, J. B. *Distribution of Wealth*, chapter 23.
Clark, J. M. *Economics of Overhead Costs*, chapters 4 and 5.
Davenport, H. J. *Economics of Enterprise*, chapters 12 and 13.
Edie, L. D. *Economics: Principles and Problems*, chapter 17.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 13 and 42.

II

Chambers, C. R. *Relation of Land Income to Land Value*, Bulletin 1224 of the United States Department of Agriculture.
Ely, R. T. *Outlines of Land Economics.*
Hibbard, B. H. *A History of Public Land Policies.*

CHAPTER XII

ECONOMIC RENT AND THE UNEARNED INCREMENT

1. Economic rent in coal mining. Economic rent is not peculiar to agriculture, but emerges in all industries, for reasons similar to those accounting for its appearance in agriculture. All industries require the use of more or less land, and in all industries some bits of land are more desirable than other bits because their possessor can produce more effectively on them than on other locations.

Economic rent in mining in some cases affords a very close analogy to economic rent in agriculture. In coal mining, for instance, the best coal deposits nearest the market tend to be utilized first of all, and the best deposits tend not to be worked beyond the point of diminishing returns. Only that part of the coal is taken out that can be moved at lowest cost. Additional tons that might be recovered at higher cost tend to be left underground. Competition among coal producers tends to keep market price down to the cost of mining the coal that can be most cheaply thrown on the market. As demand for coal grows larger it becomes necessary to mine the better deposits more intensively — to dig deeper beneath the surface or farther from the mouth of the mine, and to take out a larger percentage of the coal in the veins that are worked. Also, to meet the total demand, it becomes necessary to resort to thinner seams deeper underground and to deposits farther from market. Thus output can be increased only at increasing cost. Market price must cover the cost of producing the more expensive tons and therefore more than covers the cost of the less expensive tons. The better mines begin to yield a rent, or, as mine rents are commonly called, a "royalty." Owners of such mines can sell their coal at a price that more than covers cost of production — at the price that covers the cost of the tons produced by the no-profits producer in the poorer mines, or in the mines far from market, or at the cost of the extra tons taken from the better mines by decreasing the percentage of the coal left underground in pillars, and so on. If the mine-owners do not care to operate the mines themselves, they may lease them to others who will pay a royalty of several cents for every ton mined, the royalty

tending to equal the difference between the no-profits producer's cost of mining the coal in any given mine and the market price at the mouth of the mine. Cost, as the term is here used, means, as in our earlier chapters, all expenses of production, including fair wages for the manager himself and interest on his own capital. The royalty on mines having rich deposits near a good market may be so great that such coal lands sell for $1000 an acre or more. The price of coal land tends to represent the present value of all royalties that may be expected from it. Mine royalties differ from agricultural rent in one important respect. Mineral deposits in any given piece of land are subject to exhaustion. Eventually the last ton that can be taken advantageously from even the best coal mine will be gone, and royalties will cease. Agricultural land, however, may with care be made to yield rent indefinitely.

2. Profit and rent in metal mining. In metal mining, as in agriculture, differences in costs emerge as a result of differences in natural resources. Some gold ores are so rich that they yield hundreds or even thousands of dollars a ton, while others may yield only two or three dollars or less. Some copper ores run more than ten per cent copper, others less than one per cent. Similar differences are found in ores of other metals. Furthermore, some mines are near extensive markets, and others are thousands of miles from their best markets. These differences account for wide differences in costs of production per unit. A gold mine is not always a synonym for fortune. It may cost more money to mine the gold than can be made out of it if coined. Gold that is produced at an expense greater than the mint price of gold, $20.67 an ounce, is produced at a loss.

The question may be raised, Does the net income from a rich gold or silver mine represent economic rent? Suppose that the total operating expenses for a year amount to $1,000,000, including in that sum a fair return for the owner's own labor and capital invested in mining equipment, and suppose that the gold produced is worth $2,000,000. There is good reason for asserting that the $1,000,000 net gain is profit, rather than rent. Gold mining is a hazardous occupation. Much time and money are spent in prospecting and in developing money-losing mines. The rich mine is the exception, and may be considered the operator's reward for risk undertaken in his various ventures. The reward may be very great — tens of

millions of dollars; but when one ventures the loss of thousands, and has only one chance in a thousand to win, then millions are not an excessive reward for the risk undertaken. True, some men stumble upon rich mines and are able to acquire a fortune without either much expense or much risk, and their gains might be considered to be economic rent. It has sometimes been stated, however, that as much money has been spent in mining gold as has been taken from gold mines — that total costs of production have equaled the total value of the product. If this is true, there has been no net gain for producers in the aggregate, and the net gains of the fortunate possessors of rich mines may well be considered in the nature of profits for risks of a hazardous occupation, rather than as economic rent, such as we find in agriculture.

The losses in gold mining, and to a lesser extent in silver, copper, lead, and zinc mining, arise from the fact that the best sources of supply are hidden and tempt thousands of prospectors to spend years of their lives and all the money they can lay their hands on in trying to find the rich mine that will make their fortune. Mining in this respect is like a lottery. The more or less remote chance of a big prize tempts many to undergo the risks of almost certain loss.

In agriculture there are no similar uncertainties. The productivity of agricultural land is fairly well indicated by its surface. With a reasonable degree of care devoted to the study of the soil, climate, transportation facilities, probable costs of cultivation, and probable price of the product per unit, agriculture is not a hazardous industry. Practically every farm yields a return that covers costs of cultivation and marketing, except in times of abnormal agricultural depression. For agriculture as a whole there is a net gain — a return over and above all expenses of cultivation and marketing — a net economic rent for all the land in the aggregate.

3. Rent in the petroleum industry. In the petroleum industry, as in gold mining, phenomenal fortunes are made by those who make a lucky strike, and the huge net gain over costs of production realized by the fortunate owner of a "gusher" pouring forth thousands of barrels of oil a day would clearly appear to be economic rent if we consider only such individual cases. But in the oil industry as in gold mining there are chances of money-losing ventures as well as rich strikes. Dry holes cost thousands of dollars and represent a

total loss. Wells which flow only a few barrels a day for a short time do not pay for drilling. The great fortunes won are offset in part by losses of the unlucky or the unwise who sink their money in wells in "wildcat" territory. It is significant in this connection that for many years the Standard Oil Company, the leading refining company, preferred to buy its crude oil from others rather than stand the expense of prospecting itself. It should be noted, however, that it was able to buy its crude oil at low rates through its monopolistic position in refining and through its control of pipe lines which the oil producers required as a means of getting their product to the refineries at a reasonable cost.

With the more scientific methods of locating oil-bearing sands that have come into use in recent years, true economic rent has appeared in the oil industry. Oil wells are no longer merely lucky strikes. Many are located by geologists at comparatively small cost, and large operations, such as those of the various Standard Oil Companies, and of the large so-called "independent" companies, yield a net gain by no means offset by similar net losses. Oil land in proved territory, or even in territory that merely seems favorable, is leased by oil companies on terms which yield the owners all the way from perhaps one dollar an acre per year during the term of the lease up to millions of dollars for a small tract if oil is found in large quantities. Such incomes obviously represent economic rent to the landowners, who have in many cases bought the land at low prices for agricultural purposes and have paid nothing for its oil possibilities. When their land develops into an oil prospect or into actual oil-producing land, the resulting gain comes as a windfall, unexpected, and unearned. Many of the large oil companies buy up large tracts of land outright, after having determined roughly their value as oil producers, at less than their actual worth and reap huge gains which would seem to fall more clearly in the category of rent than of profit, whether profit be considered either payment for risk or reward for superior business ability.

It frequently happens that what might be large net gains representing true economic rent are dissipated through the drilling of an unnecessarily large number of wells, particularly when oil is struck in or near a city where land is owned in small parcels by a great number of people. Thus oil that might be taken from the ground at

an expense of merely a small fraction of its value is actually produced at a net loss.

4. Urban site rent, and the price of urban sites. Economic rent appears in spectacular form in large cities where land is in great demand as sites for stores, theaters, office buildings, factories, and so on, as well as for residences. In large cities small building lots may command an annual rental of thousands of dollars, and a single acre of ground may be worth millions of dollars over and above the value of the buildings erected upon it. A brief explanation will suffice to show how the economic rent and the price of urban sites are determined, since the fundamental principles determining economic rent and land values have already been explained in connection with our discussion of agricultural land. Somewhat modified, these principles apply to land used for retail stores, office buildings, factories, and so on. Other things being equal a retailer can sell more goods where many people pass his way than where few pass. It is from the passing crowd that the average retailer draws most of his trade. The crowd tends to congregate along Main Street, where most of the stores, office buildings, barber shops, and so on are located in a compact group. Every new storekeeper who goes into business wants his store located in this group, because he wants to be located where the crowd will see his window display in passing and be tempted in to buy. And every store added to the group makes the shopping district more attractive and increases the crowd. It is poor policy to establish a store off the beaten track, where only a few stragglers are likely to pass its door. The competing stores on Main Street will get the lion's share of the trade. And a store, if it is to pay, must have a steady stream of customers, not merely a straggler now and then. With an average stock of goods during the year worth $10,000 at retail prices, a merchant in the heart of Main Street may sell $100,000 worth, whereas the same stock of goods displayed on a side street would perhaps not produce total sales of more than $10,000. The ratio of sales to inventory, or the turnover, would in the one case be 10 to 1, and in the other only 1 to 1. If the goods were sold at 25 per cent above cost price, the Main Street store would show gross profit of $20,000, and the other only $2000. Investment in building and equipment, labor costs, and other operating expenses would be about the same on the two

sites. Adding these expenses in both cases to the cost of the merchandise, it would be found that the Main Street store showed a handsome net gain and the side street store a heavy loss. It is obvious, therefore, that a merchant can afford to pay handsomely for the privilege of operating his store in the best business section.

In the United States urban sites are more often bought outright than rented and we are more familiar with the selling price of urban sites than with their rental values. Selling price, however, depends upon rental value, representing merely the rental value capitalized at the current rate of interest, as has already been explained in connection with our discussion of the rent and price of agricultural land. For the sake of convenience in exposition let us assume that retailers ordinarily rent storerooms from others who own the land and buildings, which is in fact a common practice. After all the available lots in the compact business center of the city are occupied and the stores located thereon are doing a thriving business, competition for possession of these storerooms by renters becomes keen, and the owners can get a rent that yields them far more than the current rate of interest on the money invested in the building.

5. Calculating the rent and price of urban sites. How much any particular storekeeper is able and willing to pay in rent for a storeroom rather than go without it depends mainly upon the difference between total value of his sales and his costs of production, other than rent, including a fair return for his own labor. Ordinarily the most he will be able and willing to pay is just this difference. He may, however, be able to get his storeroom for less. There may, for instance, be three storerooms for rent and four potential renters competing for possession, A, B, C, and D. The storerooms, let us say, are equally desirable, but the four men have unequal business ability. A figures that he could clear from the use of one of these storerooms, above all costs, including fair wages for his own labor, $4200 a year; B, that he could clear $3600; C, $3000; D, $2400. The rental value of these storerooms will tend to be such as to equalize demand and supply. The supply we have assumed to be three. Three are demanded at $3000 or more a year. At a higher rental only two would be taken. Possibly, in the absence of a higher bid than $2400 by D, the other three renters might get their storerooms for less than $3000. If they pay $3000, then C makes no

profits, B makes a profit of $600 a year, and A enjoys a profit of $1200, assuming that they estimated correctly their returns. The greater the number of competitors for any given number of storerooms and the more nearly equal they are in business ability, the less likely are they to be able to rent at a figure which will leave them a profit after paying their rent.

Assuming now that the annual rental of a storeroom, as thus determined under competitive conditions, is $3000, let us proceed to calculate the value of the site on which it is located. The building, let us assume, cost $20,000. A fair return on this investment, is, let us say, $1200 a year to give the owner six per cent interest on his investment, and $800 a year in addition to cover depreciation in the building, or a total of $2000. There is left $1000 which may properly be considered the annual site value or rent of the land, which, capitalized at the current rate of interest that we assume of six per cent, gives us $16,667.

In a similar way the rental value and the selling price of urban sites for business purposes in general are determined. Roughly one may say that the rental value of any urban site tends to be the amount that a business man of very ordinary ability can pay for its use yearly and still remain in business — as a no-profits producer, and that the selling price represents this rental capitalized at the current rate of interest. Business men of higher ability can pay this rental or this price and still make profits, while those of lower ability, if they pay this much, will lose money and be forced out of business sooner or later.

6. The law of diminishing returns and urban sites. On urban sites the law of diminishing returns operates as it does in agriculture, and in the utilization of urban sites for business purposes something analogous to the extensive and intensive margins of cultivation in agriculture appears. On the best sites in the heart of the shopping district retail stores yield large returns. Selling goods at the current market price, able dealers not only can cover costs of operation and realize fair profits, but can obtain, over and above costs and fair profits, a net gain that represents economic rent. On less desirable sites this net gain is smaller, and the farther away from the heart of the shopping district the store is located, the smaller becomes the net gain, until finally a store too far from the center of

things would barely pay — it would be on or beyond the extensive margin of the retail district. This site would yield no net gain and would therefore yield no rent as a retail site.

Again, if the owner of a choice retail site, finding that large net gains resulted from operating a store on this site, attempted to increase his net gains by increasing the height of his store, he would find that the net gains did not increase in proportion with the height of his building, for two reasons. Above a certain height the cost of construction per story increases, and the sales decrease because customers prefer to trade on floors nearer the ground. The extra costs involved in building and operating, let us say, the tenth floor would be so great, and the extra sales obtained so small, that no net gain from this floor would result. Here would be the intensive margin of retailing on this site. In a general way it may be said that the larger the city, the higher above the ground floor is the intensive margin of its urban sites. In small towns two- and three-story buildings predominate in the business section. In cities a little larger three- and four-story buildings predominate, and in very large cities retail stores eight or ten stories high are common, and many are higher. It apparently pays to build office buildings and hotels higher than stores, and stores higher than factory buildings.

Retail stores, with such exceptions as corner groceries and corner drugstores catering to local neighborhoods, must be near the center of business activity. Away from the crowd they fail. The extensive margin is not far removed from the very center of the shopping district. With factories it is otherwise. They need ready access to transportation facilities, and must not be too far removed from the homes of the employees. But they need not cater to the crowds, and will not ordinarily compete with retailers for choice sites in the heart of the shopping district.

7. Urban sites for residential purposes. Ordinarily people will prefer to live in one part of a city rather than in some other part. They may prefer a particular location because it is near their place of business, because it commands an attractive view of the surrounding country, because the neighborhood is aristocratic, or for some other reason. Whatever the reason of preference may be, the preference can be measured in terms of dollars. A rich man with a

strong preference for a particular location may be willing to pay $12,000 a year for the privilege of building his house on a certain lot. If competition for this lot is strong, he may not be able to get it for less. Capitalized at six per cent this rental value would give us a selling value of $200,000. A poor man with no decided preference might not be willing to pay much for any particular lot. Still, rather than walk more than a mile or two to work, or spend fifty cents a day for car fares for himself and family, he might pay as much as $15 a month for the privilege of building his house close in rather than build out in the edge of the city where lots are very cheap. But $15 a month is $180 a year, and this, capitalized at six per cent, is $3000. Thus the site value of a lot may be thousands of dollars even to a poor man. Naturally the larger the city and the richer its people, the keener becomes the competition for its choice residential lots and the higher becomes their rental and selling value. The small plots of ground on which houses in cities are built quite commonly cost half as much as the houses themselves.

8. The argument for appropriation of economic rent by the government. It is held by many persons that economic rent represents unearned income. It is a net return to the owner of the land for which he himself is not responsible, but which has emerged as a natural result of the increase in population and the increase in the demand for the products produced through the use of the land. It is a return over and above wages for the labor employed on the land, and interest on capital equipment used on the land, and even over and above such reasonable profits as constitute a reward for risk-taking and superior business ability. No man has created the land. No one may therefore rightly appropriate for himself either its annual rent or the selling price that represents the capitalization of the rent. The people as a whole whose increase in numbers and whose increase in demand for the products of the land give the land its value are the rightful owners of the value thus created.

The apparent injustice of private appropriation of economic rent may be illustrated by the following example. Assume that in a certain country demand for wheat is so great that 600,000,000 bushels can be sold at $1.50 a bushel, and that the most expensive units of this supply cannot be produced at less than $1.50, and will not be produced for less. But the best land nearest the market

cultivated up to the point of diminishing return would produce 100,000,000 bushels at a cost of $.25 a bushel, and the average cost of producing the whole supply is only $1.00 a bushel — not including rent as a cost. But under ordinary market conditions the whole supply will sell for $1.50, and consumers will have to pay that price, although the cost of production is on the average only two thirds that sum. Out of the total of $900,000,000 that consumers pay for wheat, $600,000,000 represents payment for all the labor and all the capital employed in production and fair profits for the farmers, and $300,000,000 represents economic rent — a toll reaped by the owners of the land through their power of possession. Although our illustration is drawn from the wheat industry, it might be drawn from any other industry. Since some land is required for the production of any commodity, and since economic rent emerges in all industries, one cannot buy any material object in any well-populated country without directly or indirectly contributing to some land-owner's income in the form of economic rent.

Under private ownership and operation of industry, and under competitive conditions, all producers ordinarily tend to get the same price for like units of products, in the same market. It is not feasible to compel the farmer with fertile land near the market to sell his wheat for $.25 a bushel while the farmer with poor land far from market gets $1.50. Neither is it feasible to compel all farmers to sell at the average cost of cultivation and marketing, since all those whose costs exceeded the average would then lose money and go out of business. It seems impossible to prevent the net gain from being seized by the producers most advantageously situated. But it is held by one school of economists, commonly referred to as the "Single Taxers," that the net gain should be taken from the landowners by the Government, as a tax. The single taxers derive their name from their assertion that this tax would be sufficient to defray all public expenditures, and that all other taxes could be abandoned. It is doubtful whether or not the present enormous public expenditures could all be defrayed by this single tax on economic rent, but this does not affect the validity of the argument of the advocates of the appropriation of economic rent by the Government. The argument as presented is plausible, sound, and attractive, and as such exceedingly exasperating to some economists who are violently

opposed to public appropriation of economic rent, and in their efforts to discredit it, they are often guilty of fallacious reasoning, petty quibbling, and even offensive personalities unworthy of a serious discussion. There are, however, a number of considerations which make the appropriation of economic rent by the Government in the thoroughgoing way advocated by the single taxers appear both unjust and politically inexpedient, and to these considerations we will give our attention in the following sections of this chapter.

9. Two methods of appropriating economic rent or confiscating land values, and objections to them. There are two possible methods for the Government to follow in securing economic rent. One method would consist in the Government's confiscating the land itself, depriving the present owners of their titles, and thereafter renting the land to the highest bidder, just as landowners today rent out land which they do not care to use themselves. The other method would consist in the Government's levying an annual tax on the owners equal as nearly as may be to the economic rent. Against either of these methods serious objections may be raised.

Assume that the Government is to confiscate the land itself, and thereafter rent it out to the highest bidder. It is not intended to seize the improvements, but only the land as presented to man — a gift of nature. The improvements have been made by man, and for them some individual has been responsible. Presumably the present owner has made them or has paid some one else for making them. They ought not even to be taxed, let alone be confiscated, according to the single tax argument. Either the present owner must retain title to the improvements or the Government must pay a fair price for them. If the Government elects to buy them, it becomes the owner of all real estate — land and buildings — in the country. This would be public ownership on such a broad scale as to be closely akin to socialism, and ought not to appeal to any one except socialists. If the Government did buy the improvements they would have to be appraised at their fair value, a tremendous undertaking, and practically an impossible one in some instances. How could one, for example, determine the value of the improvements as separate from the land of a farm long under cultivation, some parts with great labor cleared of stones or stumps, some parts

drained and tiled, some parts planted in orchards, some parts increased in fertility by careful tillage, and so on, but with no records available to show the costs of improvements, nor even of the extent of the improvements made? Even if the facts on which a fair appraisal might be made were available, the appraisal might still not be fair if made by dishonest or incompetent appraisers. A disheartening amount of inequality in appraisal would inevitably appear.

If the Government did not buy the improvements it would become joint owner with the former landowner of land and improvements and the problem would emerge of distinguishing the return on the one from the return on the other. This would be essentially the same sort of task as appraising the value of the improvements. Presumably a fair return on the improvements would be reckoned as a fair rate of interest on their cost.

If the Government elected to levy an annual tax equal to the economic rent of the land instead of seizing title to the land, the problem of appraising the value of the improvements would still be present. The economic rent is the return over and above costs of production of the no-profits producer, including a fair return, let us say the current rate of interest, on the value or costs of the improvements. Assuming that a given farm were owned by an exceptionally able farmer, the Government would have to single out, from the total value of the crop, that part which represented economic rent, taking just that amount, and not taking any part of the gross revenue from the farm that represented wages of labor, interest on capital invested in improvements or farm equipment, or profits to compensate the farmer for his risk-taking and superior business ability. It is not lightly to be presumed that the Government would have officials competent and honest enough to do this complicated and delicate task well. If, however, the difficulty of administration were the only argument that might be advanced against the single taxers' scheme, the balance might incline in favor of their proposal. Appropriation of economic rent by the Government, however, involves not only great administrative difficulties, but rank injustice.

Although single taxers are right when they say that no individual can rightly claim as his own the economic rent of a given piece of land on the ground that he made the land or is himself responsible

for its value, it does not follow that justice will be achieved by confiscation of land values. On the contrary, hardly any conceivable political policy could result in graver injustice than would be involved in general confiscation of existing land values. Consider the economic effect of applying rigorously the policy of appropriating all economic rent by the Government, on January 1 of a given year. All investments in land, over and above the value of improvements, would be wiped out regardless of which method was used, that of outright confiscation of title to the land or the levying of an annual tax equal to the economic rent. The value of land over and above the value of improvements upon it represents merely the capitalized value of the economic rent. If this rent is $10 an acre, and the current rate of interest is five per cent, the value of the land is $200. Tax the land $10 an acre a year, and the net rent is zero, and the capitalized value of zero is merely zero.

Suppose that each of two men had earned $10,000, and one had invested his $10,000 in an unimproved but fertile piece of farm land, while the other had invested his in a store building on a lot leased from another. The first would lose his $10,000. The second would not be touched by the new tax, and would possibly even be benefited by being relieved of taxes on his building. Here is inequality as between one property owner and another, both of whom acquired possession of property by saving part of their wages or salary.

Again, one man might have bought a city lot for a few hundred dollars, have held it for five years, and sold it, after a period of rapid growth in population, for $100,000, investing his gains in government bonds. The man who bought it for $100,000 might be a professional man just retiring from active practice and investing his life savings in an apparently safe income-yielding piece of land. Then the rent is appropriated. The holder of the land loses his life savings, and the man who benefited from the increase in land values has his unearned gains "salted down" in government bonds. Instead of confiscating the unearned increment in land values in this case the Government would have confiscated one man's life savings.

A third case. A New England mechanic who could have earned good wages in Boston migrated to Kansas, taking up a homestead. For years the value of his crops was far less than his wages might have been back East. Including in costs fair wages for his labor he

produced wheat and corn and sold it at a price below cost of production. He did this because with the growth of the country he expected his land to increase in value, and thus eventually to offset his losses from grain-growing by its increment. When he died he left his son a farm worth, over and above the value of improvements on it, $16,000. His fellow mechanic stayed in Boston, earned fair wages, bought a house and saved in addition $16,000, invested his savings in government bonds, and died leaving the house and bonds to his son. The Government confiscated land values. The Kansas farmer's son retained his house, but lost his land. The Boston mechanic's son lost the value of the lot on which his house stood, but retained the house and the $16,000 in bonds.

Cases of the three kinds here mentioned would not be uncommon. Other similar examples might be cited. The reader may think some out for himself from his own experience. A social policy that would bring such results on a broad scale would represent a policy of grave injustice. Single taxers would doubtless admit that their policy would involve such injustice, but they would hold that the injustice would affect only the present generation, and that the long-run results would justify their policy. It does not so appear to the writer.

10. Appropriating the future increase in rent. The injustice involved in confiscating present land values is so glaring that it is altogether unlikely that the single tax program will ever be put into practice. But many persons who on the grounds of justice would oppose appropriation by the public of existing rent or land values hold that the appropriation of future increases in rent or land values would not involve injustice. It would appear that the increase in land values that is still to come has been neither created nor paid for by the existing landowners, and to reserve it for the public would deprive no one of anything to which he is justly entitled. Appropriation of economic rent in this form had gained such strong support before the Great War that it had left the domain of mere academic discussion and entered the realms of practical politics, notably in Great Britain and Germany, and it is likely to engage the attention of economists and statesmen persistently in the future. The subject therefore deserves careful consideration.

Against the appropriation of the future increase in rent or land values, just as against appropriation of existing rent or land values,

various weighty objections may be raised involving both questions of justice and difficulties of administration. In seizing the future increase the Government may theoretically proceed in either one of two ways: it may levy a tax on the owner equal to the increase in the value of his land whenever such an increase in value appears, or it may levy an annual tax equal to the difference between the economic rent in each tax year and the economic rent of the same piece of land in the base year, or the year in which the law of appropriation goes into effect.

Suppose that it is proposed to take for the public the increase in selling price whenever it appears that there has been such an increase. Such an increase in the price of a given piece of land becomes obvious when it is sold by a given holder for more than he paid for it. This might seem then an opportune time to levy the tax. If, for instance, Smith had bought an urban site for $100,000, and had ten years later sold it to Brown for $200,000, we might assume that the unearned increment was $100,000, and seize this sum for the benefit of the public. But at once obvious difficulties appear. First it must be determined whether or not there has been an actual increase in the price of the land itself. Land is ordinarily sold with improvements. If there are improvements on the land when it is sold, we must first disentangle the increase in the value of the improvements from the increase in the value of the land. On urban sites this may be more readily done than on agricultural land, since in the former case the improvements will usually consist mainly or wholly of buildings whose appraisal by competent contractors or engineers is not an extremely difficult matter.

If it is determined that the $100,000 represents purely an increase in the price of the land itself, this sum would become due the Government when the sale was made. Note the probable effect on sales. Smith owns a piece of land that is worth $200,000, presumably because it yields an economic rent which, capitalized at the current rate of interest, will equal that sum — let us say $10,000 a year. If he sells he must give half of the selling price to the Government, and be content with the $100,000 he paid for the land — assuming that he bought the land after the law of appropriation went into effect. This sum invested elsewhere with an equal degree of safety or risk will yield him only half as large an income as the land he is selling.

We may safely conclude that with such a law in effect land sales would dwindle. No one would sell any land that had increased in value since he acquired it, except under the spur of necessity.

If the Government proposes to seize the increase in the selling price it will not do to wait for land sales. All land must be appraised at regular intervals in order to uncover increase in value, and this increase must then be collected regularly as a tax. But even then further obvious difficulties appear.

Suppose that a man bought an urban site for $100,000 and erected thereon a $100,000 building, borrowing the money to put up the building on a mortgage equal to fifty per cent of the total value of land and buildings, and that his property, through increase in land values, became worth $300,000. He would be compelled to pay a special $100,000 tax for his unearned increment, possibly being compelled to borrow that sum. But he could float a second mortgage increasing his total indebtedness on his property to $200,000, or two thirds of its value, only at a comparatively high rate of interest. Conceivably his economic rent might have increased $5000 a year, and have been capitalized at five per cent to give his property its increase in price of $100,000. Possibly the interest on his loan to pay his tax might be eight per cent and amount to $8000 a year.

Suppose that after the unearned increment law went into effect inflation of the currency occurred, resulting in a general doubling of prices. Under such circumstances the price of land tends to double along with other prices, as has been explained in Chapter XI in connection with our discussion of the value of agricultural land. If in such a period of rising prices the rent of land and the selling price of land increased merely in proportion to the general increase in prices, the increase would not represent a true unearned increment in value. Suppose, for instance, that a man had paid $100,000 for a piece of land yielding a rent of $5000 a year, and when prices in general doubled, had found himself with an economic rent of $10,000 a year, and suppose that as a consequence of the increase in rent the price of his land had risen from $100,000 to $200,000. With prices twice as high as before, his $10,000 income in rent would permit him to live no better than $5000 would before. If he sold his land the $200,000 would buy no more than $100,000 would have bought before prices doubled. He would really have got no more purchas-

ing power for his land than he paid for it. Although he received twice as many dollars, each dollar would have been worth only half as much as each of the dollars he paid for it. If the Government now levied a tax of $100,000 upon his land because it had risen in selling value from $100,000 to $200,000, it would in reality take not an unearned increment, but half of the man's past savings. It might just as legitimately levy a tax on any other kind of property that had risen in price.

Land may also increase in price from a fall in the current rate of interest. If a piece of land yielded economic rent of $5000 a year, it would have a selling value of $100,000 if capitalized at five per cent, but a selling value of $125,000 if capitalized at four per cent. Thus a fall in the rate of interest might subject the owner of this piece of land to a tax of $25,000, while his rent from the land remained the same.

A particularly strong objection to taxing away the increase in land values in a lump sum is found in the fact that often the price of land falls. The price of land may fall because the general level of commodity prices falls, because the rate of interest rises, or because the real economic rent of the land in question falls. Suppose that a man buys an urban site for $100,000 because it yields a rent of $5000, when interest is five per cent, and that the economic rent increases to $10,000, the general level of commodity prices and the interest rate remaining the same. His land increases in value to $200,000. There has been a real unearned increment of $100,000. Suppose now commodity prices double and the rent rises to $20,000, and the selling price to $400,000. This increase does not represent a real unearned increment. Suppose further that the interest rate then drops to four per cent and that the $20,000 rent is fairly capitalized at $500,000. If the government seized the total increase in value, the total tax would be $400,000, and if the owner had borrowed this amount to pay his taxes he would have only a twenty per cent equity in his land, owing $400,000 on a $500,000 piece of land. If now the interest rate rose again to five per cent, his equity would be wiped out. If prices dropped to the former level, his land would drop in value to $200,000, and would sell for only half enough to pay his debt incurred to pay his "unearned increment"! Naturally the man would have lost possession long before

the price of his land fell to $200,000, unless he had resources other than his land. If he retained it, possibly a shift in the population of his city might take place, his land be left out of the line of growth, and his rents decline, until the value of his land fell back once more to $100,000. This example illustrates some of the difficulties and absurdities involved in such a program of taxation.

Some of the difficulties here suggested might be removed or minimized if the government officials carefully distinguished increases in the price of land resulting from an actual increase in real economic rent, from the increases resulting merely from changes in the general level of prices and the interest rate. This would be difficult to do, but not impossible.

If it is proposed to appropriate for the public future increases in land values, it would be much better, for various reasons, to impose a tax on the increase in rental values, rather than one on the increase in selling values. A careful appraisal might be made of the economic rent of all pieces of land, and thereafter an annual tax levied just equal to the estimated increase in rent. Under this system no landowner would be absolutely dispossessed through fluctuations in the price level or the interest rate, although the real income of landowners might be cut in half by this tax if prices doubled and their rents also doubled. In this case the increase in rent might be taken as a tax, leaving the landowner with the same money income as before, and with only half his former purchasing power. To make this tax just, the government ought to make allowance for changes in the price level. If, for example, the rent of a given piece of land was $1000 when the law went into effect, and then increased to $3000, while commodity prices and wages doubled, the landowner should be permitted to retain $2000, and pay as an unearned increment tax only $1000. This would leave him no better and no worse off than before the rise in prices.

Levying the tax upon the increase in rental value rather than upon the increase in selling value would have the advantage of providing the Government with a more steady source of revenue which, although it might decline during a period of falling prices, would not dry up altogether.

11. Further objections to public appropriation of future increase in rental values. Of the various methods of appropriating for the

public the unearned increment in land values it appears from the foregoing discussion that the least objectionable is that of taxing away from the owner annually the increase in economic rent after making due allowance for changes in the general level of prices. Against this procedure certain objections may be raised not yet presented in our discussion. In respect to agricultural land such a tax might have unfavorable effects arising from the practical difficulties of distinguishing economic rent from wages, interest, and profits. Two farms practically alike might both be yielding an economic rent of $5 an acre when the future increment tax was put into effect. Any increase in rent would thereafter be taken as a special tax by the government. Assuming the same degree of care and skill in cultivation, the economic rent would be expected to increase on both farms at about the same rate — economic rent being, as already explained, the difference between costs of production of the no-profits farmer and the value of his crop. But one of these farms might be farmed with care — erosion being prevented by proper rotation of crops, prompt filling of ditches, and so on, fertility maintained by crop rotation and application of fertilizers, soil kept in good condition by plowing at the right time and to the right depth, and so on. On the other farm an entirely different policy might be pursued, so that the productivity of the land rapidly declined. Obviously the costs of cultivation on the first farm would be higher and for the time being the value of the crops little greater than on the second farm. After several years the first farm would be much more productive than the second, and the net product over and above costs of production would appear to be much greater — on the one an unearned increment in rent might seem to have appeared, of let us say $2 an acre, and be taken by the Government. On the other no increase would seem to have materialized and no tax would be assessed. But during the period while the one farm was being improved in fertility and the other being run down, the first farmer might have been just making expenses, while the second might have been making several dollars an acre more than expenses, not counting as a cost the depreciation in his land. Now, unless the government officials were prepared to keep accurate accounts of the costs of both these farmers, the good farmer would lose by being a good farmer, and the poor farmer would gain by his destructive

methods, provided, of course, that he did not carry his policy so far as to cause eventually an actual reduction in his rent below the original $5 an acre. In short, the attempt to tax away future increase in economic rent on agricultural land would tend to discourage the careful tillage that would bring this increase into existence. It would pay farmers, unless their accounts were carefully audited by expert government accountants, to cut their costs of cultivation below the level required for maintaining the land in good condition, and thus surreptitiously, as it were, increase their net gains, for the time being, and avoid the payment of an unearned increment tax later on.

No corresponding objection holds for urban sites, but here an objection of a different type may be noted. Often there is a considerable degree of risk involved in sinking capital in improvements on urban sites, as in laying off suburban additions, or in building hotels or apartment houses on certain locations. Ordinarily the man who makes the improvements first buys the land. If his venture is successful, he gains from the consequent rise in his land values, and the community gains from his enterprise and initiative in making desirable improvements. If he miscalculates, he loses. If now we take his gains by an unearned increment tax when he profits, and do not compensate him when he loses — and no one proposes to offer such compensation — we offer him the pleasant prospect of a chance to lose, but no chance to gain. In such cases we should in reality be confiscating profits, rather than unearned increment. Of course the reasoning here presented does not apply to all ventures in improving urban sites, but it is worthy of consideration as one of the several objections to the appropriation of the future increment in rent.

12. **Economic rent and inequality of wealth and income.** Fundamentally the movement to appropriate economic rent for the benefit of the public is based upon the assumption that economic rent is a prime cause of inequality of wealth and income. Those who own the land find themselves growing richer and richer and with gradually rising incomes, while those who do not own land are being crushed under the burden of gradually rising rents or gradually rising prices of commodities produced under conditions of increasing cost. The single tax propagandist pictures the city wage-earner as

paying in rent for his house or apartment not merely a monthly sum that would represent a fair return on the investment in the building, but a large additional sum to represent the economic rent of the lot on which the building is constructed. Out of the $50 rent he pays for his house, perhaps $20 or more represents economic rent of the land. Then, the single taxer would say, the bread he buys is paid for at a rate that pays for the wheat produced under the most disadvantageous conditions, ground into flour by a miller paying economic rent for his site, baked into bread by a baker paying high rent for his bakery site, and sold by a grocer also paying high rent for his store site, and so on *ad infinitum* with other commodities the poor consumer buys. Furthermore, with our present system of taxation taxes enter into cost of production all along the line, and increase the cost of growing the wheat, milling the flour, baking the bread, and conducting the grocery store. On top of all this the poor consumer must pay taxes on his personal property and taxes on his income if it rises high enough to be taxed. The single taxers hold that by appropriating economic rent they would prevent the landowners from growing richer and richer, and at the same time, by remission of taxes on other things than land, would reduce the cost of production and thus the cost of living and free the people from the burden of taxation in general.

Undoubtedly economic rent is one of the great sources of inequality. Undoubtedly, too, if it were appropriated by the Government, the various taxes now paid might be greatly reduced. But it is easy to lay too much stress upon these facts. Although large fortunes have been realized by great landholders, particularly owners of urban sites, such as those of the Astors in New York, landownership in the United States is widely diffused. If there are hundreds or thousands who have gained millions of dollars from increase in land values, there are also millions who have gained hundreds or thousands of dollars from their smaller holdings. There are about six million farms in the United States, whose increase in values benefits their six million owners. There are millions of owners of city lots, and millions of shareholders in landowning corporations all sharing in the gains from rising rentals and land values. And there are other millions of persons who could, if they cared to, become owners of land and share in the future increase in values and rentals.

Aside from this direct diffusion of rising rental values among the people there is a great deal of indirect diffusion. We have already noted that farm products are often produced and sold for less than costs of production because the farmers consider the rising price of land as part of their reward. Similarly competition among apartment house builders becomes more keen than it would otherwise be through their desire to buy and hold land for the increase in economic rent. Thus return on the capital invested in the building tends to be somewhat cut down, and indirectly the tenant benefits from the expected rise in the site value of the lot. Similar economic effects of anticipated rise in land values may be noted in various other economic enterprises.

It must be noted, too, that in the form of special assessments increase in land values is already extensively tapped as a source of public revenue. Special assessments are payments made to the government by landowners when public improvements, such as paved streets or roads, obviously increase the value of their property. These payments are in addition to the ordinary property taxes, and cover most of the costs of making the improvements. The landowner ordinarily receives a benefit greater than the cost of the improvements, and the public benefits from having the use of the paved streets, roads, or the like, or other improvements. To the extent that special assessments are levied against landowners to pay for improvements that increase the value of their land, the resultant increase in land values does not represent an unearned increment nor promote inequality.

Writers who, like Henry George in his book called *Progress and Poverty*, find in economic rent the explanation of poverty, vastly exaggerate the proportion of the total income that falls into the hands of landowners in the form of economic rent. In the United States and other advanced industrial countries income in the form of interest on capital and rent on land constitutes less rather than more than one third of the total national income. It is improbable that as much as one half of the total income from ownership of property represents economic rent. In other words, less than one sixth of the total income represents economic rent. Not all of this goes to swell the income of the rich, since much of it falls into the hands of the moderately well-to-do and comparatively poor people

— the millions of farmers, small home-owners, small-scale business men, and small stockholders in corporations. The distribution of economic rent equally among all the people would still leave the masses poor. The sum would be too small to make every one well-to-do. It would furthermore not abolish inequality, because other causes of inequality would still exist, such as interest on capital, profits resulting from assumption of risk and business ability, high salaries for men of unusual ability, and so on.

13. Some special arguments favoring public appropriation of economic rent. In addition to the general argument in favor of appropriating economic rent by the Government, some special arguments may be noted. If the Government adopted the policy of appropriating all future increase in the rent of land, speculation in land would be greatly reduced. It would not be abolished entirely unless the Government proceeded to tax away all increase in money rents whether resulting from inflation of the currency or from real increases in net return on the land. If when prices in general rose fifty per cent the Government permitted an equal increase in money rent, prices of land might still fluctuate violently and become the means of wild speculation, just as wheat, corn, and cotton are now the instruments of speculation on the commodity markets. But that species of speculation, brought into existence by the more or less persistent rise in real economic rent which accompanies growth in population and production, would be uprooted because that persistent increase in rent would no longer remain the basis of rising land values. In this way an enormous amount of labor, capital, business management, and land more or less wastefully employed might be put to more productive uses. Evidence of such waste can be seen in almost any American town or city in the numerous "additions" laid off in lots, advertised with extravagant promises of enhancement in price, and often improved with costly sewers, pavements, and sidewalks years before there is a real need for them. The sporadic land booms that rage from time to time in various parts of the United States represent wasted wealth and energy running into hundreds of millions of dollars, and reckless land speculation has more than once precipitated financial panics or industrial depressions.

If the Government appropriated existing economic rent and pro-

posed to take in addition all future increase in rent, real estate would be worth only what the improvements are worth. The objections to such confiscation of values have already been noted. Some compensating advantages may be pointed out. The investment required to become the owner of a farm or an urban site would be greatly reduced. To become the owner of an Iowa corn and hog farm of 160 acres may under present conditions involve an investment of $40,000, of which $32,000 may represent the value of the land itself, and the other $8000 the value of the improvements. For a poor man ownership is impossible under these circumstances. Unless he is to mortgage his property for more than fifty per cent of its value, which would be unwise, and perhaps ruinous if not impossible, he must have $20,000 over and above the amount required for working capital during the year. If public appropriation of economic rent wiped out the value of the land, this farm could be bought for $8000, the value of the improvements. On less well-improved farms the total investment would be smaller, possibly not more than $2000 or $3000, so that farm ownership would become a possibility for many hired hands or tenants who as things are can never hope to own their own farms.

Similarly, the "own your own home" movement in cities might make more progress if the economic rent of city lots were taxed away by the city, removing the necessity of the poor man paying out half as much perhaps for his lot as it costs to build the house. Many a man who could afford to build a house for $7000, finds the burden excessive if he must first pay $3000 or $4000 for the lot. It would be much easier for him to pay the annual tax of $150 or $200 than to pay out in a lump sum the capitalized value of the rent which is the selling price of the lot.

Likewise the business man may find an undue proportion of his capital tied up in "fixed assets" if he buys the lot on which to build his store or factory at a fancy price representing its capitalized rental value. For instance, a retailer might possess $50,000, or just enough to erect for his own use the kind of building he desires. If he owned the building he might arrange for loans from his bank or for credit from wholesalers or manufacturers on a scale large enough to carry his business. If, however, he must pay out $25,000 for the lot on which to build, he may become so deeply involved in debt as

to destroy his credit and to hamper his business operations. The alternative is to rent from others a building less well-adapted to his business than one he might plan for himself.

If the farmer, business man, or home-owner had no investment in land, but only in improvements, he would be free from the danger of ruin that often besets the owner of high-priced farm land or urban sites, when the price of land for any reason declines sharply. The agricultural depression of 1920–26 was the result of investment in high-priced land capitalized at the rental values of the war period as much as it was the result of subsequent abnormally low prices of farm products. Most of the hundreds of thousands of farmers who were ruined during this period were ruined by the mortgages on their high-priced land rather than by merely a fall in the price of their products. Had their investment been confined to investment in improvements and their indebtedness correspondingly reduced, they might have suffered diminution in income when prices of commodities fell, but comparatively few would have been thrown into bankruptcy.

If the Government did not confiscate existing land values or rent, but appropriated all future increase in economic rent, certain advantages would emerge. Farmers, for example, would then not pay for land a price representing an anticipated increase in rent, but only a price representing its present rent. Although being compelled to forego the chance of an unearned increment, they would gain by being compelled to pay less for the privilege of ownership, and the net return on their investment would be greater. Naturally farmers who already owned land when such a tax measure was put into effect would find the value of their land reduced thereby to the extent that existing prices represented the capitalization not merely of present rent, but of anticipated future increase in rent. In short, future owners would gain. Present owners would lose.

14. Stabilizing the price of land. After the policy of taxing away future increases in rent had been operating for a considerable number of years, and economic rent had actually increased, fluctuations in the price of land would tend to cease except as a result of changes in the general level of prices or the rate of interest. To illustrate: On a certain farm the economic rent might be $10 an acre, of which $4 represented the increase in rent after the future-increment tax

went into effect. The owner would then be entitled to $6 an acre, the Government to $4. Any increase or decrease in rent would be absorbed by the Government, unless the rent fell below $6. The landowner would get neither more nor less than $6 rent, unless the total rent fell to less than $6. Any decrease from the figure of $10 an acre down to $6 would simply reduce the share the Government would get as a tax. An acre of such land would occupy an investment position similar to that of a share of preferred stock in a corporation, entitled to dividends of $6 a year, and no more. If the corporation earns $10 on its preferred stock, the dividend of $6 is fairly secure. If the earnings fall to $6, the dividend will still be paid, but there will be danger of the earnings falling below $6 and of the dividend being reduced. As the earnings over and above dividend requirements rise, the preferred stock tends to become a safer investment and the market price tends to increase, as the dividend is capitalized at a lower rate of interest, in recognition of the rising degree of safety. Similarly, the price of land would tend to rise as the rent increased even though the increase in rent were taken by the Government, because up to a certain point every increase in rent would make the landowner's share of $6 appear more and more secure. Once the excess above $6 rose as high as $4 or $5, the $6 income would be reasonably secure, and would tend to be capitalized at the low rate of interest that indicates the fairly safe investment. No further increase in rent would cause any considerable increase in price of this land, and only a considerable decrease in rent would cause much of a decrease in price. If the total rent rose to more than twice the landowner's share, the price of the land would become as stable as safe bonds, fluctuating only with changes in the general rate of interest.

Such stabilization of the price of land would tend to promote agricultural efficiency, since it would leave farmers free to devote their minds to production instead of diverting part of their mental energy to the consideration of the allurements and dangers of gains and losses through changes in the price of land.

If, however, the Government adopted the policy of leaving to the landowner, not a fixed money rent, but a fixed amount of purchasing power, money rents would change with changes in the general level of prices, and changes in the price of land would follow changes in

the money rents, so that speculative gains and losses in land would continue as long as the general level of prices fluctuated. In our discussion in an earlier section of this chapter it was pointed out that if the Government is to take only the future increase in real economic rent, it must let money rents increase as the general level of prices rises, otherwise the real income in terms of purchasing power of the landowners would be cut down if for any reason money depreciated in value. To keep money rents down while prices and wages in general rise is to take away part of the existing rental value, not merely the future increase. It would be more equitable, therefore, to let money rents of landowners fluctuate with prices in general. But if the object is to reduce speculation in land, it would be better to maintain money rents at a fixed level. Persons who bought land after such a tax system went into effect would be in a position similar to that of investors in preferred stocks or bonds. They would buy the right to a fixed money income, which would not be increased in amount, but which might possibly fail to be paid if economic rent dropped below the amount to which the owners were entitled.

15. Conclusion. In the foregoing discussion strong arguments both in favor of and against appropriation of the unearned increment by the government have been presented. It may seem to the reader that no clear conclusion can be reached from an impartial survey of the arguments on both sides. In favor of public appropriation we have the arguments that economic rent represents an unearned income, and that public appropriation of this unearned income would reduce inequality and mitigate poverty, reduce or abolish speculation in land with its attendant waste, encourage ownership of farms by the actual cultivators of the soil rather than by wealthy absentee landlords, and make it easier for the urban dweller to own his own home. Against public appropriation of economic rent we have weighty objections based upon the difficulty of distinguishing land from capital and rent from interest, wages, and profits, the manifest injustice of confiscating existing land values, and the probability of further injustice when through difficulties of administration, the wages, interest, or profits of many persons would be confiscated in the guise of economic rent. The single taxers would admit some injustice to be involved in confiscation of land values, and would recognize some of the difficulties

of administration, but the good to be achieved in the long run they would hold to more than offset the present evil of confiscation, and the difficulties of administration they would hold to be not insuperable. If, as is sometimes asserted, most of the economic ills of the country in general and the evils of inequality and poverty in particular could be justly laid against private appropriation of economic rent, and if public appropriation would abolish these evils in particular and cure the ills in general, the writer would be in favor of confiscation. But as a matter of fact the evils of private appropriation are not so great, nor the benefits of public appropriation so considerable as the single taxers often assert. As a practical program the single-tax program would offer us an opportunity to exchange one set of evils for another, and possibly a greater set.

It does not follow that there is not a grain of truth in the single taxers' lot of chaff. The arguments against appropriation of economic rent are strongest when it is proposed to confiscate all existing land values, or to make an attempt to seize all the future increase in land values or rent. They are not particularly strong against appropriating some part of the future increase. Some part, whether a fifth, a fourth, or even a third, of future increase in rent might be taken by the Government without much danger of confiscating either any considerable part of existing values, or any substantial part of any one's wages, interest, or profits. And in favor of such partial appropriation of future increase in value all the arguments of the single taxers would apply as fully as to complete appropriation. For the future, then, governments might well apply the principle of special taxation of increases in land values. If such taxes were to be put into effect in a moderate way and consistently applied, the results would probably be beneficial to the public and even to the landowners themselves.

EXERCISES

1. Explain why rent arises and what determines its amount in each of the following cases:
   (*a*) coal mining;
   (*b*) urban sites used for retailing;
   (*c*) urban sites used for residences.
2. Explain why it is that higher buildings are constructed in large cities than in small cities. From your own observations, about how large does a city have to be to make a three-story building pay when it is used as a hotel or

apartment house? When it is used as a retail store building? How large does a city have to be to make a six-story building pay for these purposes? A ten-story building? A twenty-story building?

3. Inquire from a well-informed business man in your city what the present prices of choice lots on the main street are; what these same lots sold for five years ago; ten years ago; twenty years ago; fifty years ago. These prices are not to include the value of the buildings on the lots.
4. Ask a leading business man in your city whether it is the better policy for a young man with limited capital to buy a store site and building or to rent a storeroom when first going into business.
5. Ask a leading business man long established in your city which business men have prospered most, those who have invested in real estate or those who have continued to rent their premises.
6. Would a tax on agricultural land approximately equal to its economic rent encourage or discourage young farmers in buying farms rather than renting ? Would it tend to make for better farming or worse farming? Give arguments pro and con.
7. Would an annual tax on retail store sites equal to their rental value work to the advantage or disadvantage of young merchants just going into business? Why?
8. Would an annual tax on residential lots equal to their rental value encourage young people to own their homes? Why or why not?
9. Do you believe that public appropriation of economic rent would be a good thing? Why or why not? If the single taxers' program should be adopted, what method of application would probably give the best results? Why?

REFERENCES

I

Bullock, C. J. *Selected Readings in Economics* (1907 edition), chapter 18, section 5.
Carver, T. N. *Essays in Social Justice*, chapter 11.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 35.
Hunter, M. H. *Outlines of Public Finance*, chapter 16.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 180–85.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 43–44.

II

Ely, R. T. *Outlines of Land Economics.*
George, H. *Progress and Poverty.*
Hurd, R. M. *The Principles of City Land Values.*
Young, A. N. *Single Tax Movement in the United States.*

CHAPTER XIII

COST OF PRODUCTION IN MANUFACTURING: DECREASING COST

1. Brief statement of the principle of increasing cost. In Chapters IX, X, and XI were discussed conditions of cost in agriculture as affected by an increasing demand for agricultural products and the consequent expansion in the total output of the industry. It was shown that after a certain point is reached in the expansion of output, further additions to the total supply can be made only at increasing cost per unit, and this was illustrated by the example of wheat-growing. To grow the extra bushels resort must be had either to more intensive cultivation of the best land nearest the market or to land less fertile or farther from market. In whatever way the output is increased, the costs of cultivation and marketing increase per unit of product. It was further pointed out that under conditions of private ownership of land, the more favored land — that on which costs of cultivation and marketing are less per unit than the costs of cultivation and marketing of the most expensive units produced — commands a yearly rent and a price. The rent or the price tends to be such on any piece of land as will equalize the cost of production and marketing on all land in cultivation, if the rent or the price is considered as a cost item, as it must be by the individual producer, regardless of the fact that the land itself cost nothing to produce, but is a gift of nature. Only if some producers are more able, or if they have bought the land below its present value, and consider what they paid for it rather than what they could get for it the cost, do some producers produce more cheaply than others. This leaves out of account the producer who unwisely tries for a while to produce on land so poor that his costs of cultivation exceed the market price. Such producers soon drop out. It will be understood, therefore, that by "increasing cost in agriculture" we do not imply that some producers have very low costs and others very high, but that as total output is increased the extra units by whomever produced are produced at an increasing cost. Rent and the price of land iron out differences in costs of the various producers, if these

differences are the result of differences in the land used and not the result of differences in business ability.

2. Principle of increasing cost applies to all extractive industries. This principle of increasing cost is not peculiar to agriculture, but applies to other extractive industries, such as forestry and mining, which require the use of much land and relatively little labor and man-made goods, or capital. Furthermore, and contrary to impressions that might be created in the mind of the reader by many textbooks in economics, it applies in a modified way to all other industries, including manufacturing industries. In mining as in agriculture, operations are begun under conditions that involve the least trouble or the lowest costs of production. The best deposits of coal or iron ore nearest the market are first utilized, if they are known. As demand increases and expansion of output takes place, poorer deposits farther from market are utilized at increasing costs, and the better sources of supply soon command a price, in some cases a very high one. The producer who enters the field at the present time has the choice of paying a high price for a good source of supply and low operating costs, or of paying a low price — perhaps a negligible price — for a poor source of supply and high operating costs. In all such cases, as in agriculture, the market price tends to cover and to be the result of the high operating costs on the poorest land used, and the high price of the good sources of supply represents the difference between the operating costs and the value of the product. In one respect mining differs from agriculture and forestry — the best sources of supply are often hidden, are discovered more or less by accident, and do not come into use until after worse sources of supply have been widely utilized. But even in agriculture the best land is not always recognized by the early settlers. Early settlers in Missouri and Iowa are said to have preferred the wooded land along the streams to the open prairie land, although the latter was more fertile, more easily cultivated, and easier to maintain in good condition because less hilly and less subject to erosion. They may have been influenced solely by the convenient supply of water and wood of the river lands, but it is asserted by old-timers that the prairie land was believed to be worthless, not having fertility enough, it was thought, to grow trees.

3. It applies to all other industries to the extent that they require

land for their operations. In manufacturing, as in any other industry, some land is used by producers. All require at least factory sites. The manufacturer, of course, is not interested in the nature of the soil of his factory site beyond the fact that it must be solid enough to support his buildings. But some sites are more conveniently located than others in respect to market, supply of labor and materials, transportation facilities, etc. Convenience in location reduces operating costs. To the extent that manufacturers can foresee future developments the best sites are utilized first. Later comers must use less desirable sites giving rise to higher operating costs. As expansion proceeds, less and less desirable sites perhaps must be used, or more intensive use must be made of the more desirable sites by means of higher buildings set closer together. The more favored sites rise in rental value and price, the rent or the price varying with the degree of desirability and tending to equalize the costs of all producers except as the costs are affected by differences in ability. In merchandising similar conditions prevail, and merchants and manufacturers frequently come into competition for the same sites. The rents or prices of any group of sites of equal desirability are determined by the principle of marginal vendibility of producers' goods. Any particular site unique in character will fall into the hands of the producer able and willing to pay the highest price for it, and the price, or the rent he pays, will be just a little more than the next most eager and able buyer is able and willing to pay. It would seem, then, that the law of increasing costs works itself out in manufacturing just as in agriculture. But we must note certain important differences in conditions.

4. Tendency to increasing costs not strong in manufacturing. With certain exceptions, no manufacturing plant need be located on a site much worse than that of any other manufacturing plant. Not much land is needed for all the manufacturing plants in the country. About 100,000 square miles of land is necessary to produce our wheat crop. But all the automobiles produced could be manufactured on a comparatively few square miles. The manufacturer can choose his location. All automobile producers, if they saw fit, could build their factories in Detroit. But not all farmers can farm in Illinois. The law of increasing costs operates with less effect, therefore, in manufacture than in agriculture. Differences in the

quality of land used are unimportant. Differences in location are less pronounced than in agriculture. Intensive use of the better factory sites at increasing cost per unit of product has as yet played no important part. There is no such strong tendency, therefore, for costs per unit to rise as output of the whole industry increases, as there is in agriculture.

5. Indirect effect of increasing cost in manufacturing. Although there is no strong tendency for costs per unit of product to rise in manufacturing as a result of differences in building sites used, nevertheless in some manufacturing industries there is a distinct tendency for the cost per unit to rise with expansion of the industry as a whole. This tendency is strongest in those manufacturing industries whose costs consist most largely of raw materials produced under conditions of increasing cost, such as the packing industry and the flouring industry. The greatest single item of expense of the packer is that of live stock, and live stock is produced under conditions of increasing cost. Consequently, as the packing industry expands it tends to be compelled to pay higher and higher prices for its raw material, the live animals, and consequently its cost per unit of product tends to rise. Similarly with the miller. If only half as much flour were demanded as at present the milling industry would be only half as great, and would require only half as much wheat, and that wheat it could buy probably at a much lower price than prevails to-day. To the extent that any manufacturing industry includes among its cost items commodities produced under conditions of increasing cost, it is subject to the law of increasing cost. We may say that under such conditions it is affected indirectly by the law of increasing cost.

6. Principle of decreasing cost in manufacturing. But the manufacturing industry is generally considered as one to which the law of *decreasing* [1] cost applies, because of the economies of large-scale production. These economies in many manufacturing industries tend

[1] The critical reader should note that the present writer means by decreasing costs the reduction in cost per unit that results from the internal and external economies of large-scale production, and not the reduction that results from more complete utilization of existing plant and equipment. Thus costs in industries enjoying economies of large-scale production tend downward as total output increases, just as costs of extractive industries tend upward as total output increases. Theoretically there is a limit to the downward tendency reached when all plants have reached the limit beyond which no further economies of large-scale production can be realized.

to result in a reduction in costs per unit of output as output expands which more than offsets the tendency to increasing costs that is manifested in manufacturing either directly or indirectly. In discussing the tendency to decreasing cost in manufacturing as output expands, we must distinguish carefully between the results of expansion in a single plant and the results of expansion of output for the industry as a whole. The two things are so radically different that failure to make this distinction may leave the student in a very muddled mental condition. The reduction in cost per unit that tends to result from expansion of a single plant may be called the result of internal economies, or direct advantages of large-scale production; and the reduction in cost that tends to result from expansion of a whole manufacturing industry may be called the result of external economies or indirect advantages of large-scale production. We will consider first the internal economies or direct advantages of large-scale production.

7. Internal economies of large-scale production. Large manufacturing establishments can generally produce at a lower cost per unit of output than small ones. There are six reasons commonly advanced why this is true. We will consider each of these briefly.

(1) Division of labor can be developed to greater perfection in a large plant than in a small one. If division of labor is to realize its maximum of efficiency, everybody connected with the manufacturing establishment must be a specialist working at a single well-defined job, and everybody must be kept busy. The bookkeeper must be a bookkeeper solely and not also a shipping clerk. The small plant might have to choose between a bookkeeper working part of the time at other tasks and a bookkeeper loafing part of the time. The large plant can keep him busy all the time at his specialty, or can even subdivide the work of keeping books and have a specialist for each phase of it. Similar statements hold true for other employees in a factory, such as sales managers, purchasing agents, night watchmen, etc. But the whole matter of efficient division of labor is more complicated than would appear from these simple cases. In manufacturing shoes of a certain grade, for example, about one hundred different operations are performed on each shoe produced. There should be a specialist for each task or operation, and he should be kept busy. But some tasks may require only half

a minute, some one minute, some two minutes, some three, etc. To keep everybody busy all the time at his specialty it is necessary to employ not merely one hundred workers, one for each task, but several hundred. There must be twice as many workers on the one-minute jobs as on the half-minute jobs, four times as many on the two-minute jobs, and six times as many on the three-minute jobs, if all tasks are to move along at an even pace. There must be just as many soles cut out as uppers. The more workers a firm employs the more nearly it can approach to the ideal condition in which every man is kept busy at his specialty all the time.

(2) The large-scale producer can cut costs per unit by more effective use of machinery. Machines, like men, perform their respective tasks in varying intervals of time. If one machine for one task works just three sevenths as fast as another on another task, then there should be at least seven of the one and three of the other if both are to be kept busy all the time. Any establishment on a smaller scale would not get the maximum use of these machines. Furthermore, some machines are so expensive and save so little in cost per unit that the small-scale producer cannot afford to buy even one. Professor Taussig mentions as an example of this a pole-making machine used by the International Harvester Company, which cost $2500 and saved one cent a pole. If we assume that such a machine would last ten years, and that its original cost, together with costs of repairs, and interest on the investment, would amount to $5,000 and that its use would save the company in other costs one cent a pole, it would have to turn out 500,000 poles to pay for itself. A small producer might not need that many poles and would lose money by buying the machine, but a producer who used it in making more than 500,000 poles would save more than enough to pay for the machine.

(3) The large-scale producer can often carry on expensive experiments, the results of which may cut the cost of production. For instance, a manufacturer of metallic products might employ a chemist and maintain a laboratory at a cost of $20,000 a year. If his costs per year amounted to $10,000,000, and the chemist discovered a process that would reduce them one per cent, it would mean a saving of $100,000 a year. For the small producer this would be out of the question.

(4) The large-scale producer can utilize by-products more effectively, and make these pay in part the costs of producing his main product. The meat-packing industry is commonly used to illustrate this point. Every part of the animal is saved and made into some salable article. Among the by-products are glue made from hoofs, tankage made from blood and bones, and soap made from grease not fit for culinary purposes. Large packers have advertised that they pay more for the live animal than they get for the meat, selling the by-products for enough to cover the costs of killing and dressing the animals and to yield a profit to the packers.

(5) The large producer can often buy his materials and supplies to better advantage than the small producer. In the first place, because he can buy in carload lots he gets cheaper freight rates than the small producer who buys in less than carload lots. In the second place, he may pay less per unit for the goods he buys because merchants and manufacturers prefer to sell in large lots, and are likely to make a concession in price rather than lose a large sale, and because in some cases, he can afford to send buyers scouting around looking for bargains, which the smaller producer may be unable to afford to do.

(6) Likewise the large producer can reduce selling costs per unit. Under selling costs we include such items as salaries of the sales department, advertising, catalogues, etc. It costs less than ten times as much to print and distribute 100,000 catalogues as to print and distribute 10,000. Advertising in the *Saturday Evening Post* costs the same per page whether the manufacturer has one thousand or ten thousand agents scattered over the country. It is, of course, possible for a producer to increase his selling costs per unit as sales increase rather than to reduce them, if his goods have little to recommend them but his advertising, and his expansion is made possible only by an aggressive advertising campaign. Students sometimes misunderstand this sixth point because they confuse the term *selling costs* with *price of the product.* It should be remembered that we are stating the reasons why a large producer can reduce the total cost of his product, and why he can therefore afford to sell at a lower price. It would be absurd, of course, to say that a producer can reduce his costs of production by selling his product at a lower price. The writer receives this startling piece of information in his classroom every year.

(7) In addition to these six advantages of large-scale production certain others may be mentioned. In some cases large operations involve no more labor than small ones. It is as easy for the bookkeeper to make an entry of $100,000 as to make an entry of $100, or at any rate not more than twice as difficult. The purchasing agent can buy 10,000 tons of steel perhaps as quickly and easily as 1000 tons. There are other cases than those already mentioned in which an increase in the scale of the business does not involve a proportional increase in costs. Within certain limits space can be provided in large buildings more cheaply than in small buildings. The cubic contents of a room increase more rapidly with size than the area of the four sides, the floor, and the ceiling. In proportion to factory space, then, the large factory requires less building material than the small one. The capacity of water pipes, boilers, engines, etc., has a tendency to increase more rapidly than the quantity of materials contained in them or their cost. The larger plant may reap economies from this source.

The foregoing does not represent an exhaustive discussion of the internal economies of large-scale production, but it will suffice to indicate that large plants do have substantial advantages over small ones, and will serve to explain why there has been such a strong tendency toward large-scale production in all industrial countries in recent decades.

8. External economies or indirect advantages of large-scale production. Consider now the external economies or the indirect advantages of large-scale production. In other words, consider how an expansion in the total output of any manufacturing industry and manufacturing industries as a group may reduce costs of production of the individual manufacturers in those industries. First note that there is no necessary relation between the output of an industry as a whole and the size of the individual establishments in that industry. A relatively small industry may be in the hands of a few large producers, and a relatively large industry in the hands of a large number of small producers. Measured by the value of its products, the corn industry is larger than the copper industry, but the corn industry is an industry of small establishments, and the copper industry is one of large establishments. However, the larger the demand for the product of an industry becomes, the easier it be-

comes for some enterprising business man to develop a large-scale establishment, provided only it is possible to produce more cheaply in a large plant than in a small one — provided, that is, that there are internal economies to be realized. In practically all manufacturing industries there are such internal economies, as explained in the preceding section. In the United States and other highly industrialized countries the great demand for manufactured products and the internal economies of large-scale production have resulted in the development of large-scale plants in a great variety of industries.

Now all manufacturing industries are more or less one another's customers. Each buys materials, supplies, or machines from several of the others. When these materials, supplies, and machines are produced under conditions of decreasing costs resulting from internal economies, the price under competitive conditions tends to fall with the fall in costs, and the larger the plants grow in which they are made, within limits, the lower become the costs and consequently the price of the product. The producers in each manufacturing industry therefore benefit in the way of lower costs through the internal economies of production in other manufacturing industries. These reductions in costs, combined with their own internal economies of large-scale production, reduce still further their own total costs of production, and under competition bring still lower prices for their products. And when these products are sold in turn to the other manufacturers who buy them, *their* costs are thereby further reduced, and likewise the price of their product, and so on *ad infinitum*. Each large manufacturing plant eventually benefits directly from its own internal economies of large-scale production, and indirectly from the internal economies of all other manufacturing concerns, provided there is more or less free competition in all industries, so that no one industry absorbs an undue share of the benefits of low costs by maintaining unduly high prices under monopoly.

9. Conditions under which external economies are realized. It should be noted, however, that any industry benefits indirectly from the economies of large-scale production only to the extent that it buys producers' goods made under conditions of decreasing costs. If, as in the case of the meat-packing industry, its raw materials consist largely of products produced under conditions of increasing

cost, then expansion in the industry as a whole may mean higher costs, and not lower costs per unit. If most of its supplies, materials, and machines are produced under conditions of decreasing cost, then the larger the industry becomes, the more it benefits indirectly from the economies of large-scale production.

Wheat-growing, which we call an industry of increasing costs, benefits enormously indirectly from large-scale production. Because there are so many wheat-growers and other farmers using similar or the same kind of farming implements, these implements are produced in large plants enjoying internal economies of large-scale production, and benefiting indirectly from economies of large-scale production in other industries. It benefits also from the economies of large-scale production in the transportation industry, which not only enjoys internal economies of large-scale production, but benefits in an indirect way from large-scale production. It is often difficult to distinguish the reductions in costs that result from new inventions and processes from those that flow from large-scale production. They are closely related. In some cases large-scale production results from inventions; and in others, inventions result from large-scale production. Both together have in the United States largely offset the effect of the law of increasing cost in agriculture. In fact at times increasing agricultural output has gone hand in hand with lower costs of production. If methods of production in agriculture had not changed during the last hundred years, and if American farmers had not benefited indirectly from economies of large-scale production in manufacture and transportation, the cost of producing wheat would have been rising gradually as output expanded. But because methods of production have changed and because farmers have benefited from economies of large-scale production in manufacture and transportation, wheat is actually produced at lower cost per bushel to-day than one hundred years ago, if we make allowance for the decline in the value of money and the higher level of wages.

10. **The less extensively and less directly an industry draws its raw materials from extractive industries, the more it gains from external economies.** In general it may be said that the less extensively and the less directly an industry draws its raw materials from the extractive industries, the more it stands to gain indirectly from

the economies of large-scale production. This may be illustrated by supposititious examples from the textile industry. Suppose we have cotton yarn produced under two conditions — first, by small plants in a small industry, and second, by large plants in a large industry. Suppose, too, that the raw material required, cotton, is produced under conditions of increasing cost, and that the large cotton yarn industry must, therefore, pay more for cotton than the small, but that the large industry's other costs are lower as a result of external and internal economies of large-scale production as indicated in Table XVI.

TABLE XVI. ECONOMIES OF LARGE-SCALE PRODUCTION WITH RAW MATERIALS PRODUCED UNDER INCREASING COSTS: COTTON YARN

COST ITEMS	COSTS PER POUND OF YARN PRODUCED	
	Small Plant in a Small Industry	Large Plant in a Large Industry
Cost of cotton.....	$0.10	$0.20
Other costs.....	.30	.15
Total costs.....	.40	.35

With conditions of cost as assumed in this table, cotton yarn is produced at a lower cost per pound by large plants in a large industry than by small plants in a small industry, but the advantage is very small because the economies of large-scale production, both external and internal, are largely offset by the increasing cost of the raw material. Now let us note how different would be the result in cotton cloth plants, whose raw material is not cotton drawn from an extractive industry, but cotton yarn, produced under conditions of decreasing cost in a manufacturing plant. With conditions of cost as shown in Table XVII, the economies, both external and internal, of large-scale production are pronounced because they are not offset by the use of raw material produced under conditions of increasing cost. The costs in these tables are, of course, purely fictitious, but nevertheless they represent a fundamental truth. The illustrations could be carried further to show the effect of large-scale production on costs of plants requiring the use of cotton cloth as raw

TABLE XVII. ECONOMIES OF LARGE-SCALE PRODUCTION WITH RAW MATERIALS PRODUCED UNDER DECREASING COST: COTTON CLOTH

COST ITEMS	COST OF CLOTH PRODUCED FROM ONE POUND OF YARN	
	Small Plant in a Small Industry	Large Plant in a Large Industry
Cost of yarn	$0.40	$0.35
Other costs.....	.30	.15
Total costs.....	.70	.50

material, and on other plants using the product of these plants as raw material, and so on. The effect of external or indirect economies of large-scale production is cumulative, the economies of each stage in production being added to the economies of each preceding stage to the advantage of the producer in each succeeding stage, provided only that competition prevails and prices of products reflect the reduction in costs.

11. Industries in which internal economies of large-scale production are limited. We have indicated that all industries gain more or less from the external economies of large-scale production — getting at least some of their producers' goods at lower prices as their total output increases and their demand for producers' goods increases. Not all industries, however, gain from internal economies of large-scale production. Large establishments in some industries are less economical than small ones. Agriculture remains predominantly an industry of small establishments. This is the result mainly of the seasonal nature of farm work, which makes it impossible to apply division of labor in a thoroughgoing way, and the difficulties of supervision of workmen scattered over a wide area. Five thousand workers in a textile plant can all be easily supervised because they may all be in one large building. A farm employing that many workers would have an area of perhaps several hundred square miles, particularly if it were a grain farm. The workers could not be highly specialized, because farmers do not sow wheat, or plow land, or cut hay all the year round. The hired men could not be kept busy all the time at the same task, and in most cases they could not be kept busy all the time at any task. Retail merchandising is still largely

an industry of small establishments, the exceptions being the great department stores in large cities, the mail-order houses, and the chain-store systems recently developed. The reason for this has been the limitations imposed on size by the available market. Stores, particularly grocery stores, must ordinarily be close to their customers, and their size is limited by the number of available customers. Department stores have been able to grow large by increasing the variety of articles handled and thus appealing to more customers in a limited territory. Mail-order houses have drawn trade from distant places by low prices. Chain stores have grown large by scattering their stock of goods over a wide territory and thus increasing the possible number of customers. Once having overcome the handicap of a limited market, these stores gain many of the internal economies of large-scale production enjoyed by manufacturing plants. In the field of transportation and mining important internal economies of large-scale production can be realized for reasons similar to those discussed in connection with manufacture.

It remains to be seen whether or not agriculture may become an industry of large-scale production through the use of the automobile, the motor truck, the farm tractor, and paved roads. These new developments may make supervision of large farms easier, and may enable farmers even to overcome the difficulties of the seasonal nature of their work, by farming in several States, from Texas to North Dakota, and shifting their crews from South to North, and North to South, with the seasons. Experiments in this sort of thing are already under way.

EXERCISES

1. What is meant by *internal economies* of large-scale production? by *external economies* of large-scale production?
2. As the wheat industry in the United States has expanded, what factors have tended to bring about increasing costs per bushel? What counteracting factors have tended to bring about lower costs?
3. Why is it that the copper industry is called an industry of large-scale production while the corn-growing industry is not, although the corn crop exceeds in value the output of copper?
4. In what industries are internal economies of large-scale production most pronounced? most limited? Why? What industries that enjoy internal economies of large-scale production benefit most from external economies of large-scale production? What industries that benefit from internal economies of large-scale production benefit least from external economies of large-scale production? Why?

5. In respect to production of each of the following commodities, corn, flour, pig iron, tin cans, automobiles, cotton yarn, and shirts, can a large plant produce at lower cost per unit than a small plant? Why, or why not? Can a large number of small plants produce at lower cost per unit than a small number of small plants? Why, or why not? Can a large number of large plants produce at lower cost per unit than a small number of large plants? Why, or why not? As the total output of the industry increases, are costs per unit likely to rise or to fall? Why?

For "References" for this chapter see end of Chapter XIV.

CHAPTER XIV

DECREASING COSTS, INDIRECT COSTS, AND PRICE

1. Summary of preceding chapter. For reasons discussed in the preceding chapter manufacturing is ordinarily carried on under conditions of decreasing cost. Generally speaking, a large manufacturing plant can produce more cheaply per unit of output than a small plant, other things than size being equal, because of the internal economies of large-scale production. In some industries, such as meat packing, these internal economies of large-scale plants may be offset by the increasing cost of the raw materials as the whole industry expands and requires larger and larger quantities of raw materials produced under conditions of increasing cost. But in a larger number of manufacturing industries the raw materials and other producers' goods used are produced under conditions of decreasing cost, so that as the industry expands costs are reduced in two ways — by internal economies of large-scale plants, and by external economies of large-scale industry. In other words, because of the great demand for the materials, supplies, and machines used, these are produced in large plants at low cost, and may under competitive conditions be bought at low prices. Then the particular manufacturing industry we have in mind, benefiting to begin with from these low-priced cost items, works them up into its finished product in its large plant with all the internal economies of large-scale establishments. This is merely a summary statement of matters discussed in detail in the preceding chapter. In this chapter will be considered the relation between conditions of cost in manufacturing industries and the price of the product. It will be necessary to take into consideration not only the effect on price of the economies of large-scale production but also the effect of indirect costs. It will be the more necessary to note carefully the effects of indirect costs because the peculiar effects of indirect costs are frequently confused with the effects of the economies of large-scale production.

2. Competitive conditions under decreasing cost illustrated by automobile industry. It will help the student to understand the discussion of the principles involved if we illustrate them by a con-

crete example. We may choose for this example the automobile manufacturing industry, which is clearly an industry in which the principle of decreasing cost operates. Not only do large plants in this industry have advantages of internal economies of production over small plants, but the industry as a whole tends to benefit from cheaper raw materials, supplies, and machinery as it expands and the demand for these articles increases.

We will not attempt to describe the industry exactly as it is, with all its complexities, but will make certain assumptions not in accord with the facts, but approaching them nearly enough to make valid any conclusion we may draw from our discussion. Our assumptions will be made to simplify and clarify our discussion and to bring out sharply the general principles involved, and not for the purpose of proving a point that would not be supported by actual statistics if these were available. Let us assume, then, that we have only three automobile manufacturing concerns, each producing a car somewhat different from the others, but still in the same general class, and that price is the determining factor in attracting customers for the three different cars — that any one of the three concerns can draw away the customers of the others by a reduction in the price of its car. Let us assume further that all operate under conditions of decreasing cost; gaining considerable advantage from internal economies of large-scale production as they expand, and that these economies are not offset by rising costs of their producers' goods as the whole industry grows larger. Let us assume, too, that each concern tends to expand production when it is making profits, and will furthermore keep on expanding production or at least maintain production if so doing involves a smaller loss than not so doing. Finally, let us assume that the three concerns are largely owned and controlled by three men, whom we may call A, B, and C respectively, who differ in business ability, with the result that A produces at a lower cost than B, and B at a lower cost than C. So far, in our assumptions, we have made only one assumption contrary to fact, namely, that there are only three producers, and this assumption, although contrary to fact, cannot invalidate any conclusions that we may draw from the following discussion. Now let us make two further assumptions, namely, that the three producers do not make any agreements with one another to limit output or in any other way to restrain the free

play of competition for business, and that the costs of production for each run as shown in Table XVIII.

TABLE XVIII. COSTS PER CAR IN PLANTS OF VARIOUS SIZES OPERATING AT FULL CAPACITY

CAPACITY OF PLANT	COSTS OF A	COSTS OF B	COSTS OF C
20,000	$1000	$1050	$1100
40,000	900	950	1000
60,000	800	850	900
80,000	720	770	820
100,000	640	690	740
120,000	600	650	700
140,000	560	610	660
160,000	530	580	630

3. Varying costs of various producers with plants of various capacities. In Table XVIII we show that the costs of each producer decrease as he expands output. We assume that with a plant of 20,000 cars capacity a year run at full capacity, A's costs are $1000, B's costs are $1050, and C's are $1100, and that with every increase in plant capacity each producer is able to cut costs by the same amount, so that throughout the process of expansion A's costs remain $50 under B's and B's $50 under C's, when all are expanding at the same rate. In actual business such an unvarying difference in costs among the competing producers would of course be quite unlikely, but the cost figures given in the table represent as truly as any actual figure would the principles involved when competing producers are manufacturing at various costs under conditions of decreasing cost, and they are convenient in exposition. All cost figures in the table represent costs with the plants of the various sizes run at full capacity, because we wish to show first of all the effect on competition and prices of the law of decreasing cost, without bringing in the complications immediately that result from the operation of indirect costs which we shall reserve for discussion later in this chapter. We assume, for example, that with a plant of 20,000 cars capacity running full blast, A's costs per car are $1000, but if he expands his plant to 40,000 cars capacity and is again running full, his costs are reduced to $900. For the time being we omit from con-

sideration his probable costs per car during the process of increasing production from 20,000 to 40,000 after having expanded his plant capacity.

4. Demand schedule for automobiles. Let us next consider conditions of demand. Other things remaining the same the greater the number of automobiles produced and thrown on the market the lower must be the price in order that all may be sold. This is in accordance with the general law of diminishing vendibility. Furthermore, if the automobiles are all practically alike they must all be sold at practically the same price — the price determined by the marginal vendibility of the given supply. In some cases it may seem that the law of diminishing vendibility has been repealed — that larger and larger quantities are offered for sale and sold with little or no reduction in price. This may happen when there is a rapidly increasing demand, but the law of diminishing vendibility is still operating, only counteracted by the increase in demand. For automobiles, as for everything else, there is at any given time a demand schedule that represents various quantities that would be bought and could be sold at various prices, and at any given time higher prices can be had for smaller quantities than for larger quantities. A year or two later demand at any given price may be greater — there may be a new demand schedule. Up to this point we have been stating fundamental principles of demand, and not making assumptions merely. It would be possible to construct a demand schedule from past sales and price statistics if one cared to take the trouble, but it would be a complicated problem. To illustrate our principles of price determination, an assumed demand schedule will serve the purpose as well as one built by painstaking research. We will therefore assume a demand schedule, as shown in Table XIX.

Table XIX. Assumed Demand Schedule for Automobiles

Number Demanded	At the Prices below
60,000	$1200
120,000	1050
180,000	925
240,000	825
300,000	740
360,000	650
420,000	575
480,000	500

5. Conditions of cost and demand graphically depicted. This demand schedule indicates that at $1200 each, 60,000 cars could be sold, but that the price would have to be progressively reduced to dispose of larger and larger quantities. The foregoing conditions of supply and demand may be graphically depicted as in Figure 6, in which the line *DD* represents the demand schedule, the line *CC* conditions of cost for A, the most efficient producer, and the line *C′C′* conditions of cost for C, the least efficient producer.

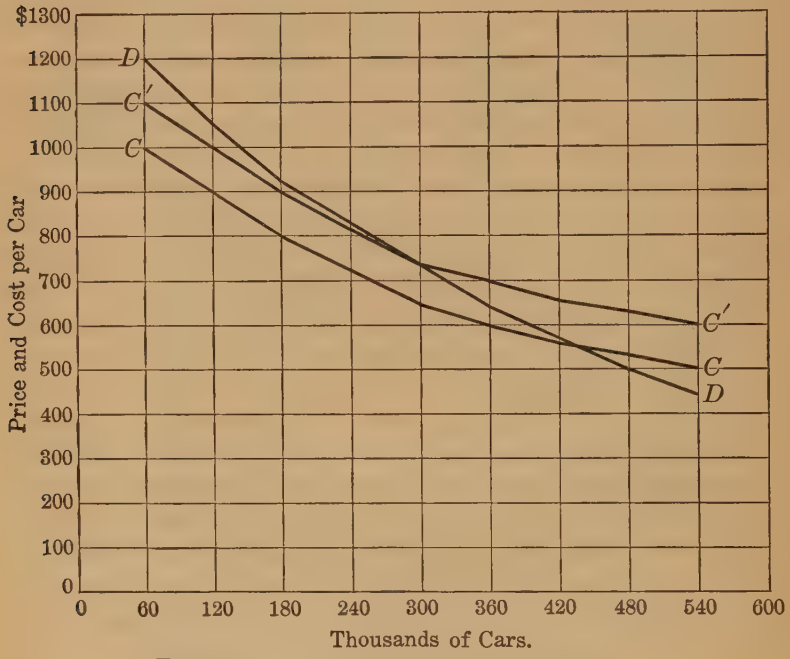


FIGURE 6. CONDITIONS OF DECREASING COST

DD = demand schedule
CC = lowest cost producer's costs
C′C′ = highest cost producer's costs

It should be noted that the supply curve *CC* represents the various costs to A when he is producing various quantities, and that he is assumed to be producing in all cases one third of the total supply. It shows, therefore, that when he is producing one third of 60,000 cars his cost per car is $1000; when he is producing one third of 120,000, his cost per car is $900; and so on. Similarly the line *C′C′* shows

C's costs when he is producing one third of the various quantities shown in the schedule at the bottom of the chart. For the sake of keeping the chart as simple as possible no cost line was drawn to represent B's costs, but if such a line had been drawn it would lie halfway between the line *CC* and *C'C'*.

6. Strong incentive to expansion. Now from these conditions of cost or supply on the one hand and demand on the other, we may draw the following conclusions, drawing our data either from the demand and supply schedules in the Tables XVIII and XIX or from Figure 6. With a total output of 60,000 automobiles market price is considerably above the costs of production for all producers, both the least efficient and the most efficient. All are making good profits, and all have strong incentives to expand. A is making huge profits — $200 a car on an output of 20,000 cars, a total of $4,000,000. He is likely to conclude that by doubling his output he could more than double his profits, figuring that by production on a large scale he could cut his costs, and that the demand for his product might increase sufficiently to take the larger quantity at the same price. Even if he had to cut prices $100 a car when he expanded, he would still double his total profits if he could cut costs by an equal amount per car. He would then be making $200 profits on each of 40,000 cars, or $8,000,000. He would probably expand even if he thought that prices would be forced down by expansion more rapidly than costs, for three reasons. He would want to find employment for his large profits, and would know of no better place to invest them than in the industry in which he was already making a success. He would calculate that somewhat smaller profits on each car might be more than offset by the larger output, so that his profits in the aggregate would still increase. Finally, he might reason that failure on his part to expand would simply encourage so much greater expansion on the part of his competitors. If they expanded and he did not, they would by economies of large-scale production cut their costs below his and would eventually force prices down below his costs, and thus drive him out of business.

Similar reasoning would apply to C, the least efficient producer. His profits are only $100 a car when the total supply is 60,000 cars, and therefore his total profits are less than A's. On this score he would have less incentive to expand than A and less ability, since he

would have only $2,000,000 in profits to invest in expansion. Nevertheless, he would desire to expand, since $100 profit on each of 40,000 cars is better than $100 profit on each of 20,000. If he had reason to believe that increased production would not be met by increased demand and that prices would consequently fall, he would have an even stronger reason to expand. His costs are already $100 higher than A's and $50 higher than B's. Failure on his part to expand and meet part of the demand for cars would only stimulate A and B to expand so much faster. Their expansion would permit them to cut their costs, and would tend to force down prices. A cut in prices of $100 with his costs remaining the same would leave him without profits. A further cut and he would be producing at a loss and would soon be forced to suspend. The position of B would be in some respects like that of A and in some respects like that of C, and requires no detailed analysis. We may conclude, therefore, that all three would expand.

7. **Competitors forced to expand in the face of falling prices.** Let us assume that all have expanded to a capacity of 40,000 cars a year, and that the total supply of 120,000 has necessitated a cut in price to $1050. A is then making a profit of $150 each on 40,000 cars, or a total of $6,000,000. He has benefited from expansion by an increase of $2,000,000 in his profits. C is making profits of $50 on each of 40,000, and his total profits remain as before, $2,000,000. He has neither gained nor lost from the expansion, unless we consider it a gain for him to have found investment at a fair rate of interest for his accumulated profits. B is making a profit of $100 a car on each of 40,000 cars, as against a profit before of $150 on each of 20,000. His total profits have therefore increased from $3,000,000 to $4,000,000. He has gained less than A but more than C.

Suppose that A had not expanded, and that B and C had, and that the total output had thus been brought up to 100,000 cars, and the price down to $1100 instead of $1050. In other words, suppose that both expansion and the consequent cut in prices had gone only two thirds as far as we first assumed. How then would A have fared? His profits would have been cut in half — to $100 on each of 20,000 cars, instead of $200 on each of 20,000. Furthermore, his total profits would have been only one third as great as they would have been had he expanded. On the other hand, his failure to expand

would have increased the profits of his competitors B and C, since they would have been able to double output without suffering the same penalty as before in price cuts. B would have made profits of $150 on each of 40,000 cars, a total of $6,000,000, as compared with A's miserable little $2,000,000. Thus A would have been playing into the hands of his less efficient competitor, and providing him with the funds to finance further expansion to A's further detriment.

Suppose next that C in view of his narrow profits had decided not to expand for fear of depressing prices, and that A and B had expanded to 40,000 capacity, and that with a total supply of 100,000 cars the market price had dropped, as we assumed before, to $1100. C's costs would have remained at $1100, and he would have made no profits at all. Obviously it was better for him to expand and maintain his profits at $2,000,000 than not to make any at all. We have shown now that neither A nor C could wisely refrain from expanding without a general agreement among all producers to restrict output. Similar reasoning would hold for B, or for any other producer if there were more than three in the field.

8. Expansion naturally continues until weaker competitors fail. Now let us consider whether or not all three producers would have reason to expand output further from 40,000 to 60,000 cars each, and from 60,000 to 80,000, and so on. We must conclude that as long as all were making profits the same reasoning we have already applied to each would hold. Under free competition expansion under decreasing costs would continue, and would be followed inevitably by price cuts, unless it happened that the conditions of demand changed so rapidly for the better that the producers could keep on marketing the increasing supply at the same price as before. Temporarily an increase in demand — a new demand schedule — may offset an increase in supply, but only temporarily, if the output increases rapidly. Let us assume that there is no change in the conditions of demand — that we retain the demand schedule we started with, and that the quantity demanded is affected only by changes in price, and not by factors other than price. How far would expansion be carried and what would be the effect on price?

With a total production of 300,000 cars, equally divided between A, B, and C, price would have fallen to $740. A's cost would be $640, B's, $690, and C's, $740. Price would be down to C's cost of

production, but A would still be making a profit of $100 a car, or $10,000,000 a year, and B, a profit of $50 a car, or $5,000,000 a year. Further expansion to 120,000 cars each would bring prices down to $650, or $50 below C's cost of production. B would be just covering cost, and A would have the narrow profit of $50 a car. Obviously the last expansion, from 100,000 to 120,000 cars, has been a disastrous one for C, bringing with it a loss of $6,000,000 a year — a loss which, if continued for a few years, will inevitably ruin him. But failure on his part to expand would not have made matters better, since prices would have dropped anyway under the force of A's and B's expansions to, let us say, $680, while his costs would have remained at $740. He would have lost $60 on each of 100,000 cars, or $6,000,000. C is evidently in for a bad time. He seems to be a ruined man whether he expands or not. If he could quit without loss he might be glad to retire with the fortune he has made under more favorable conditions. But his fortune is tied up in his plant, which he cannot sell at a reasonable price, because it is a money-losing proposition. Possibly he might sell out to one of his competitors. Competition would then continue between A and B until price fell below costs of one or the other of them and he was forced out of business. This would bring an end to competition, and beyond this point we will not carry the present discussion, since we are reserving conditions of monopoly for discussion in a later chapter. In actual business there would be likely to be more than three competitors, and monopoly would not result so easily as by merely driving two manufacturers to the wall. Otherwise our example illustrates competitive conditions very well as they exist under decreasing cost, except for the fact that we have left out of account in part the effect of indirect costs.

9. Indirect costs in manufacturing. Indirect costs have an important bearing on the manufacturer's desire to expand production and upon his desire to remain in business even at a loss. These costs have already been discussed in Chapter VII, sections 10–12, in connection with demand schedules for producers' goods and in Chapter XI, in connection with cost of production in agriculture. It will only be necessary, then, to remind the reader that by indirect costs we mean those costs which tend to remain fixed in a business plant of a given capacity regardless of fluctuations in the volume of out-

put. In the automobile industry indirect costs would include such items as a fair rate of return on the investment in plant and equipment, taxes, depreciation, administrative salaries, and rents on property leased for considerable periods of time. By direct costs we mean those costs which tend to vary directly with the volume of output. These costs would include such items as wages, costs of raw materials, and costs of transportation. Some cost items are neither wholly direct nor wholly indirect. They increase with volume of output, but not in proportion to the increase in output. Included under this head are such items as light, heat, salaries, and traveling expenses of employees. If such a cost item should increase only half as fast as volume of output it might be called fifty per cent direct and fifty per cent indirect. In the automobile industry indirect costs are of considerable importance, as indeed they are in most manufacturing industries, and may for our purpose here be estimated at about twenty-five per cent of the total costs, if plants are being operated at capacity.

10. Influence of indirect costs often confused with economies of large-scale production. The importance of indirect costs in any industry in which they appear lies in this: If at any time a plant is not operating at practical capacity it can increase its output with much less than a proportional increase in costs. The extra units of product involve no additional expenses for plant and equipment, taxes, depreciation, administrative salaries, etc. They involve merely some additional expenditures for raw materials, labor, transportation, etc. In other words, as a manufacturing plant expands its output from fifty per cent of capacity to one hundred per cent, it reduces its average cost per unit of product.

The reduction in cost per unit that comes from fuller utilization of existing plant and equipment should not be confused, as it often is, with reduction in cost that comes from the use of a larger plant — from the economies of large-scale production. A simple example may serve to clear up any confusion on this point. Let us assume that in our automobile industry indirect costs constitute twenty-five per cent of the total, and direct costs seventy-five per cent, when plants are run at full capacity. Then let us refer back to Table XVIII, on page 246, which indicates that A's costs in a plant of 80,000 cars capacity when run at full capacity are $720 per car, and

in a plant of 100,000 capacity run at full capacity, $640. This reduction in costs is the result of production on a larger scale in a larger plant. Now let us suppose that A, having expanded production to 80,000, the capacity of his existing plant, expands his plant to a capacity of 100,000, but does not at once expand his volume of production. This increases his indirect costs per car from $180 to $200, as we may calculate from the figures just given. We assume that the indirect costs in the 100,000-car plant are $160 a car when the output is 100,000, or a total of $16,000,000. Running at eighty per cent of capacity and turning out only 80,000 cars does not reduce indirect costs. The indirect costs would therefore amount to as many dollars per car as 80,000 is contained times in $16,000,000; or $200. Expansion in plant without expansion in output has therefore increased A's indirect costs $20 a car. If however, he can now increase output to capacity of his larger plant, he can reduce indirect costs $20 below his former indirect costs. In other words, running his new plant at capacity instead of at eighty per cent of capacity means a reduction of $40 in indirect costs alone. There would be also some reduction in direct costs resulting from production on a larger scale. We may conclude from the foregoing that indirect costs tend to offset the advantages of large-scale production when the plant is first extended, and before the increased capacity is fully utilized. They serve thus as a brake on expansion. Producers think twice before embarking on a policy that may raise their costs per unit. Once the expansion in plant has been made, however, indirect costs intensify the advantages derived from increase in output, and make producers doubly eager to gain additional buyers of their product.

11. **Effect of uneven expansion of plant capacity and output.** Table XVIII and Figure 6 represent costs per unit decreasing with every increase in output. From what has been said about the effect of indirect costs on total cost it will be understood that total costs may not decrease so evenly with expansion of plant and output. When there is uneven expansion of plant capacity and output, costs tend to decrease, but in a bumpy and uneven manner something like that represented in Table XX and Figure 7. In Table XX we assume the costs of our three competing producers to vary from one another as before, A's costs remaining always $50 below B's and B's

TABLE XX. EFFECT ON COST OF UNEVEN EXPANSION OF PLANT CAPACITY AND OUTPUT

PLANT CAPACITY	ACTUAL OUTPUT	A'S COST	B'S COST	C'S COST	PRICE
40,000	40,000	$ 900	$ 950	$1,000	$1,050
80,000	40,000	1,000	1,050	1,100	1,050
80,000	60,000	840	890	940	925
80,000	80,000	720	770	820	825
120,000	80,000	760	810	860	825
120,000	100,000	680	730	780	740
120,000	120,000	600	650	700	650
160,000	120,000	630	680	730	650
160,000	140,000	580	630	680	575
160,000	160,000	530	580	630	500

always $50 below C's. But in this table we show roughly the effect of rising indirect cost per unit when plants are expanded and expansion in output follows slowly. The table does not represent any attempt at a precise mathematical calculation, but merely illustrates in a rough way how an expansion in plant capacity may temporarily raise a producer's cost per unit of output, until output once more overtakes plant capacity. The figures in the table are based in a general way on the assumptions that indirect costs are about twenty-five per cent of the total when plants are run at capacity, and are higher when plants are run at less than capacity; that expansion and improvements in plant reduce direct costs to some extent even though no expansion in output follows at once; and that with expansion in output following expansion in plant both direct and indirect costs fall rapidly. Figure 7 represents graphically the effect of expansion of output on costs for A and C, under the conditions shown in Table XX.

12. Upward jogs in cost curves. In Figure 7 we have a demand schedule just like that in Figure 6, represented by the heavy line *DD*. In this figure, as in Figure 6, we assume three competitors producing the total supply represented by the scale of numbers at the bottom of the chart, and we assume that the line *CC* represents A's costs when he is producing one third of the total supply, and that the line *C'C'* represents C's costs when he is producing one third of the total supply, but we show the effect of indirect costs, which are not indi-

cated in Figure 6. The upward jogs in these cost curves represent the effect of uneven expansion of plant and output. We begin with costs of $900 and $1000 for A and C respectively when both are operating their 40,000-car plants at capacity. At this point we assume that both double capacity, without increasing output, and that this forces their costs per car up to $1000 and $1100 respectively. As they expand output their costs per car decrease rapidly until it again becomes necessary to expand plant capacity, which again increases costs somewhat.

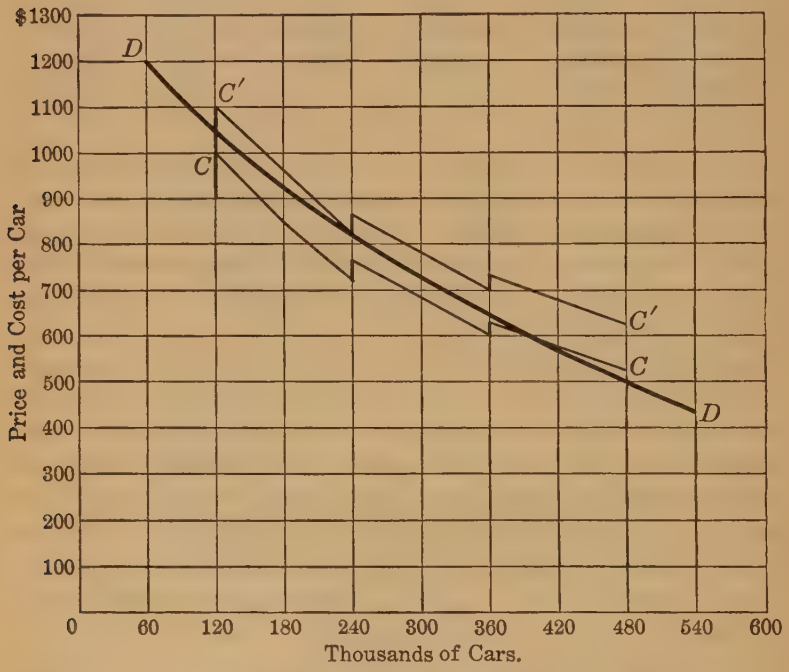


FIGURE 7. CONDITIONS OF DECREASING COST WITH UNEVEN EXPANSION OF PLANT CAPACITY AND OUTPUT

DD = demand schedule
CC = lowest cost producer's costs
C′C′ = highest cost producer's costs

In Figure 7 it is seen that C's position is hopeless even before total production reaches 180,000, with price forced down to $925. If he decides not to expand output his costs remain at $1000, or $75 above price. If he doubles the capacity of his plant as assumed, his

costs temporarily rise to $1100. As he expands production he has one more successful moment — his costs dropping to $820 when his larger plant is running at capacity, while price is $825. But under pressure of further expansion of A and B, price is forced down again below his costs, and further expansion of his plant to 120,000 cars capacity raises his costs definitely, and, so far as the chart goes, permanently above price. He seems doomed to failure.

13. **Indirect costs and competition.** In Table XX the exact position of A, B, and C in the competitive struggle is shown more precisely than in the chart. We begin with each of the three competitors operating a 40,000-car plant at capacity, and producing therefore in the aggregate 120,000 cars which can be sold at a price of $1050. This price gives C, the least efficient producer, a profit of $50 per car, B a profit of $100, and A a profit of $150. The situation is ripe for expansion, but expansion of plant not followed immediately by expansion of output brings an increase in costs, as shown in the table, of $100 a car for each producer. C's costs have risen above price. Expansion in output reduces his costs sharply, but brings also a fall in price. By the time he operates at full capacity again and is producing 80,000 cars, he has managed to reduce costs to $820, or $5 below the price that prevails when 240,000 cars are marketed. Further expansion in output for him requires a larger plant and this again raises his costs above price. A and B are making good profits and can expand plant without bringing their costs above price, but if C expands his plant capacity to 120,000 cars, his costs rise temporarily to $860, or $35 above price. Such expansion might seem unwise, but must be undertaken if A and B expand because their expansion in plant capacity will be followed by expansion in output and a fall in price below C's cost. By expanding C has some hope of reducing costs once his output approaches the capacity of his larger plant. However, this hope is not well founded, since expansion in total output forces market price down farther, and when C is once more operating at capacity and turning out 120,000 cars, market price has dropped to $650 or $50 below his costs.

14. **The choice between losing less and losing more.** One might think that C should have given up the struggle at the time when expansion of plant first brought his costs above market price. Possibly, however, he might not have known in advance that expansion of

plant would result in cost of production exceeding market price. He might have hoped that this expansion in capacity would be followed at once by expansion in output and in sales at a price above cost of production. Even if he did know, or at least did fear, that his costs would rise above market price, or that market price would fall below his costs, he might nevertheless have stayed in business, because he might have suffered greater loss by giving up than by hanging on. Let us take the case of C at his last successful moment with an 80,000-car plant run at capacity. His costs are $820. Market price is $825. He is making profits of 80,000 times $5, or $400,000 a year. If he decides not to expand, and his competitors do expand until total production reaches 360,000 cars, prices according to our demand schedule will have fallen to $650, while his costs remain at $820. He will be losing at the rate of $170 times 80,000, or $13,600,000 a year. If he does expand, and manages to get his share — one third of the business — and produces 120,000 cars at a cost of $700, and sells them at $650, he loses only $50 a car, or $6,000,000 a year. If he decides not to expand, and then closes down his plant rather than operate at a loss, his indirect costs on the 80,000-car plant continue. We have assumed them to represent twenty-five per cent of the total costs of $820 a car, or $205 a car. In the aggregate then they amount to 80,000 times $205, or $16,400,000 a year. If he decides to sell his plant he will have to sell it at a great loss, since as an automobile manufacturing plant it is a money-loser, with little prospect of earning a return on money invested in it. For other purposes it might be worth even less. With a turn for the better in the automobile business, such as might result from a general decrease in costs, or a great increase in demand for cars, he might hope once more to make such large profits that he could sell his business for $100,000,000. If he sells when he is producing cars at a price that little more than covers direct costs, with barely enough left over to take care of depreciation and taxes, he might not get even $10,000,000 for it. If he had borrowed capital in excess of $10,000,000, he might not even be able to meet the claims of all his creditors. He would be bankrupt. All things considered it might be by far the wisest policy, under such circumstances, to keep on expanding at a loss.

The position of B might in time become as desperate as that of C

under our assumed case of just three competitors. If there were more than three varying in ability, and with varying costs as a result of varying ability, the least able would eventually be forced out with great loss. The longer they held on and expanded in the face of increasing difficulties, the greater would be the final inevitable smash. If a number of the more efficient producers still left toward the end of the competitive struggle were about equal in ability, they might continue to expand until the market price fell below the costs of every one of them, and until all were involved in ruin. Each would be in the position of losing some money if he expanded production, but of losing more if he did not expand, or if he closed down his plant.

In industries operating under conditions of decreasing cost and in which indirect costs are important, competition is thus likely to be extremely severe, and is sometimes called cut-throat competition. Such severe competition, threatening ruin to most or all of the producers, is a strong incentive to agreements in restraint of competition, restriction of output, or monopoly.

15. The cost of the extra units. One phase of the subject of decreasing and indirect costs has not yet been considered. It can be explained most readily by a concrete example. If A produces 40,000 cars in an 80,000-car capacity plant, at an average cost of $1000 each, or a total cost of $40,000,000, and can produce 80,000 cars in the same plant at an average cost of $720 each, or a total cost of $57,600,000, then the extra 40,000 cars cost only $17,600,000, or $440 each. If the producer could keep on selling his first 40,000 at $1000 or more each, he would make a profit on the other 40,000 at any price above $440. In the case of any freely transferable good, like an automobile, it is not possible for producers to maintain two prices for different parts of the supply, and this matter of the extra cost for the extra units is of minor importance. Producers are not likely to offer for sale part of the supply at the price that just covers the additional costs of producing the additional units.

In the transportation industry, which sells services rather than transferable goods, it is possible to maintain for a time two prices for the same service sold to different patrons. In order to get additional traffic, railroads with plant and equipment only partly utilized have at times made secret lower rates to some shippers to draw traffic from competing lines. Since in railroading indirect

costs are greater than direct costs, and since the direct costs — the extra cost — of hauling an extra car are very small, railroads have often agreed to take some traffic at ridiculously low rates, so low, in fact, that if all their traffic had been given equally low rates, they would soon have been ruined. A little of that sort of thing seemed to the railroad men a good device to increase their total profit. But when one railroad by these low rates drew traffic from another, and the other in retaliation made similar low rates to bring the traffic back, and these very low rates were made to many shippers on a considerable proportion of all the traffic, then both roads were soon on the way to ruin. Such conditions actually developed on a large scale in American railroads and forced some railroads into bankruptcy. The term "cut-throat competition" applies with particular force to railroad competition as it develops without government regulation of rates, when several roads with plants operated at much less than capacity operate in the same territory under free competition. This subject will be discussed in more detail in Chapter XVIII.

EXERCISES

1. Why can a large manufacturing plant run at full capacity produce at lower cost than a small plant run at full capacity? Why may a small plant run at full capacity produce at lower cost than a large plant run at less than capacity?
2. When a manufacturer doubles the size of his plant does he ordinarily reduce his cost of production per unit at once? in the long run? Why, or why not?
3. When a number of manufacturers are competing with one another in the sale of their product, each of them having a heavy investment in plant and equipment, why are they likely to expand output and cut prices? Will the expansion in output and cutting of prices cease when prices fall below the costs of production of the least efficient? of the majority of them? of all of them? Why, or why not?
4. Explain and illustrate graphically the effects of uneven expansion of plant capacity and output.

REFERENCES

I

Ely, R. T. *Outlines of Economics* (1923 edition), pp. 164–73.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 17.
Hobson, J. A. *Evolution of Modern Capitalism*, chapter 5.
Marshall, Alfred. *Principles of Economics*, book IV, chapter 11.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 4 and 14.

II

Clark, J. M. *Economics of Overhead Costs.*

CHAPTER XV

MONOPOLY AND MONOPOLY PRICE

1. Business men and the dragon of competition. In Chapters VIII to XIV, in which we traced the relation between costs and price, we assumed competitive conditions, and it was shown that under competitive conditions market price tends to fall to or below the costs of some or even of all the producers. As long as producers are making profits they tend to expand in order to increase their profits. Unless the demand for their product increases as rapidly as the supply, the price falls, first below the costs of the least efficient, then below the costs of more and more efficient producers, and in some cases below the costs of all producers, particularly when they are operating under conditions of decreasing cost and with heavy indirect costs. There are then thousands of business men who fail every year in a country as large as the United States. *Dun's Review* reported 20,615 failures for 1924, with liabilities of $543,225,000 and an average number of failures for the four years 1921–24, of 20,665. Many thousands more manage to stave off failure only with the greatest difficulty. To these men competition must seem to be a horrible monster between whose two remorseless jaws of falling prices and rising costs their business ventures are ground to pieces. They long for a Saint George to slay the dragon so that they may go about their business in peace and gather in their profits without risk. And if no valiant champion appears to fight their battles for them, they do not hesitate, if we may change the metaphor, to bell the cat themselves. Frequently some groups of business men persuade the Government to slay the dragon of competition, or at least to afford some protection against the monster by means of protective tariffs, subsidies, bounties, or other similar government devices. When the Government is unable or unwilling to play the part of Saint George, and business men find competitive conditions intolerable, they often strive to end them by various kinds of agreements or organizations to maintain prices above costs of production. Prices can be so maintained only by control of the whole supply or of a very large part of the whole supply in the hands of one man or

a group of men acting in concert. When supply is so controlled we have monopoly.

2. Agreements to maintain price and to restrict output. Monopoly may be the direct result of the pressure of competition, or it may be the result of other causes. Consider first the monopoly that grows naturally out of competition. Conceivably it might be achieved in various ways. If all the competitors in a given industry, let us say the sugar industry, agree with one another that they will not sell any sugar for less than a given price — let us say ten cents a pound, a price above the cost of production of even the least efficient producer — then we have a monopoly of sugar until the agreement is broken or new competitors enter the field. This sort of agreement is very likely to be broken, however. There will be some producers tempted by the high price to expand production and to try to sell more than before. They will find it difficult to expand sales at the high price and will secretly cut the price below the agreed-upon monopoly price, still getting more, however, than the previous competitive price. The price-cutters will speedily gobble up the business and leave the producers more faithful to the agreement with their sugar unsold and their business demoralized. Such an agreement to maintain prices has a better chance to succeed if the producers agree in advance upon the quantity each is to produce, and this must be less than each produced before if all is to be sold at the higher price. This is in accordance with the law of diminishing vendibility. Less can be sold at a higher price than at a lower price. Even then, however, the agreement is not likely to be kept by all. Some will produce more than their allotment, and, in trying to dispose of their product, will secretly cut the price.

A monopoly device that works somewhat more successfully than simple agreements to maintain prices or restrict output is found in the central sales agency. All producers agree to turn their total output over to a central sales agency through which alone buyers may buy, and if any producers sell to outsiders they must pay part of the price received to the central sales agency to be distributed among other members of the organization of producers. Still another device is for competing producers to agree on a division of the territory in which they sell — each producer having some territory reserved for himself. Still other devices of a similar kind have been

used, but will not be discussed here, since an exhaustive discussion of the subject of all sorts of business combinations to maintain prices and restrict competition is possible only in a book devoted to that subject alone. It will suffice for our purpose here to point out that those already mentioned represent some of the various devices for maintaining prices above the competitive level without taking the trouble to get absolute control of the various business establishments in the industry into the hands of one business concern. All such attempts at monopoly have in the past proved less successful than those based upon ownership or control of most or all of the producing plants in the industry by one business concern or by one small group of business men very closely associated.

3. **Horizontal and vertical combinations and their advantages.** In those industries in which pronounced internal economies of large-scale production occur, there has been a strong tendency during the latter part of the nineteenth and the early part of the present century for the business establishments to grow larger in size and fewer in number. There has been a tendency also for several of these large plants to be combined under common ownership and management. The combination movement has taken two forms, commonly referred to as "horizontal" and "vertical." By horizontal combination is meant the combination of two or more formerly competing plants under one management. For example, Smith, Brown, and Jones, each owns a large sugar refinery, and they are competing with one another in the sale of sugar. Smith buys out Brown and Jones, and thereafter manages all three plants himself. For Smith this has two advantages. In the first place it lessens competition. In the second place he is able to achieve certain economies — which may be called economies of large-scale management. He can operate the three plants more cheaply than they were operated before because he can standardize the machinery used. He can buy his machinery, materials, and supplies more cheaply because he buys in larger quantities. If the three plants are located in different parts of the country, at Baltimore, New York, and San Francisco, he can buy raw materials for each at the nearest market and sell the product of each in its own adjacent territory, and thus save freight charges. Furthermore, if he develops improved processes in one plant he can immediately adopt them in the other plants. If business gets slack he

can close down the least efficient plant and operate the other two at capacity instead of running all three at about two thirds of capacity, and gain something in reduction of costs from this source.

By vertical combination is meant the combination under one management of two or more plants devoted to different stages of manufacture of the same product. For example, Johnson owns a deposit of iron ore and is selling ore to Thompson, who uses it in his iron and steel plant. The ore is shipped over a railroad owned by Simpson. Thompson buys out Johnson and Simpson. He thus assures himself an abundant supply of iron ore and avoids the risk of having to pay exorbitant prices later, or the risk of having some competitor get control of his only available sources of supply and forcing him out of business. By getting control of the railroad he protects himself from unreasonable freight charges, of which there is some danger unless he is protected by government regulation of railway rates. He might go further and buy up plants for turning his crude iron and steel products into more highly finished products such as wire, nails, steel rails, iron pipes, etc., articles which he could manufacture to good advantage because assured of a good supply of raw materials at cost of production. In many of our manufacturing industries in which large-scale production has developed, both horizontal and vertical combination have taken place on a large scale, as in the sugar, iron and steel, tobacco, harvesting machinery, oil, and other industries.

4. Desire for monopoly often the chief motive for combination. It has been stated that horizontal combination has two advantages. It lessens competition and it reduces costs of production. The economies of large-scale management may be substantial, but the chief motive leading to combination has often been the desire to restrict competition and if possible to achieve monopoly, to the end that price could be raised above the competitive level. The device of combination has proved to be the most effective means by which business men have been able to achieve monopoly. All monopolistic devices, whether simple price agreements, pools, or combination monopolies, succeed most easily when the number of previously competing concerns is small — that is, they succeed best in industries in which large-scale production has developed, as in manufacturing, mining, and railroad and ocean transportation. In

agriculture, in which large-scale production has made little progress, there have been few successful attempts at maintaining prices above the competitive level through agreements among producers or combination of producing plants.

5. Complete monopoly in manufacturing almost impossible. Complete monopoly even in manufacturing is almost impossible to achieve. Always some independent producer is likely to remain outside the combination, or some new producer to enter the field tempted by the high prices that an established monopoly usually maintains. But to maintain prices above the competitive level absolute monopoly is not essential. It is only necessary that the dominant producer control a large enough part of total output so that when it reduces output its reduction materially affects the total output and the price. Control of even fifty per cent of the total output gives the dominant concern some control over price, since for each ten per cent it cuts down its own output it cuts down the total output five per cent, and thus according to the principle of diminishing vendibility increases the price it can get for its product. There are numerous examples of manufacturing industries in the United States in which at some time or other some one concern has controlled more than fifty per cent of the total output. We may mention the Standard Oil Company, the American Tobacco Company, the United States Steel Corporation, the American Sugar Refining Company, and the National Cash Register Company.

6. Difficulty of maintaining prices without complete monopoly. Although complete control of the total supply is not essential to maintaining price above the competitive level, the lack of such control makes the monopolist's position very insecure. When he restricts output in his own plants and thus brings about a rise in price, his small competitors are likely to take advantage of the rise to increase their output and their profits. This naturally decreases the percentage of total output controlled by the monopolist and weakens his control over prices. Furthermore, in so far as he succeeds in maintaining price above cost for any considerable time he encourages new producers to enter the field. Thus his position is gradually undermined. If he controlled ninety per cent of the output, his control drops to eighty per cent, to seventy, to sixty and finally below fifty per cent, and his power to maintain prices is gradually lost.

To maintain his control the monopolist resorts to various practices — some fair and some foul. Strong independent plants that threaten to expand are bought up. If the owners refuse to sell at a fair price, unfair methods of competition may be used against them. The monopoly may refuse to sell its products to merchants who handle the products of the small competitors, and the merchants who cannot do business successfully without the product of the monopoly cease buying from the independents. The monopoly may make exclusive contracts with machine manufacturers so that the independent concerns cannot get machines which they must have for successful production. If the business of the independent producer is largely localized in one section of the country, as is often the case, the monopoly may resort to local price-cutting, selling its product in that section below cost until the local producer fails, meanwhile making profits in other sections of the country. These and many other devices have been used by most of the industrial monopolies that have developed in the United States. If the monopoly cannot buy up or drive its competitors out of business, it tries to come to an agreement with them to restrict the total quantity produced and to maintain prices. If the number of competitors is comparatively small, these agreements may be kept over considerable periods of time.

7. Reasons for doubting that monopolists produce more economically than competitors. Sometimes these large monopolistic combinations are defended on the ground that they reduce cost of production through various economies of large-scale management, and are thus able to sell at lower prices than a large number of smaller competing establishments. If this were true, then they might be socially desirable because they would be increasing the quantity of goods produced with a given amount of human labor, and this is a desirable thing. Parenthetically we may remark that even if they did achieve these desirable results, they might still be socially undesirable because they put enormous power over others into the hands of a few men. It is frequently asserted that a small group of men in control of our large industrial corporations is more powerful than our government officials and controls our Government. Now it is not desirable that a small group of business men should control our Government, nor even that they should be in a position that generates

the suspicion that they do control it. But, returning to our main argument, there are reasons for doubting that monopolistic combinations produce more economically and sell more cheaply than competitive business establishments. If they could produce at lower costs they would not need to resort to abominably unfair and dishonest practices to force competitors out of business, as most of them have done. That they sell at lower prices than would prevail under competition is extremely doubtful. In so far as statistics throw light on the matter, they tend to show, on the contrary, that when a monopoly gets control prices go up. The economies that come from vertical and horizontal combination can be realized without monopoly. In our large industries there is room for several such combinations to operate side by side on a competitive basis.

8. Monopoly avoids certain wastes of competition. Something can be said in favor of monopolies, whether they be of the variety based on ownership and control of most of the plants in a whole industry by one or a few men, or whether they be of the looser type represented by agreements among several or many producers to restrict output and maintain prices. They tend to prevent a certain amount of waste. Under competition there are always business establishments being built up which are doomed to failure, and when they fail a large part of the labor expended on them and the materials used in them are found to have been wasted. Under competition there is much unnecessary duplication of plants and a tendency for the number of producing plants erected to be greater than is necessary to supply the wants of the people for various kinds of goods. There is a tendency for some goods to be produced in larger quantities than are required at certain times in certain places. Consequently it is necessary to scrap, to sell at a sacrifice, to put to uses for which they were not designed — in a large degree to waste — both producing plants and product. Under competition producers rarely know in advance how large a quantity of product they can sell at a price that will cover cost of production. To know that, they would need to know not only what the total demand would be at a price that would cover their own costs, but also the total supply produced by all their competitors. The best that producers can do under such circumstances is to make shrewd guesses as to total demand and total supply of all their competitors, and guess

at their own costs and at the market price that will prevail after they have produced. Some of them can of course contract with buyers who agree to take their output at a stated price. But the risk which the seller thus escapes the buyer assumes. Now it may be urged in favor of monopoly or monopolistic agreements among many producers that by these devices some of the wastes of competition may be avoided. The monopolistic organization makes a survey of the quantity of product that will probably be demanded at a price that will cover cost of production with a fair profit left over for producers. Then production is restricted to that quantity. Thus waste in extension of plants and in manufacture of product is largely avoided.

9. **But monopoly leads to greater wastes.** There are certain weak points in this argument in favor of monopolies and monopolistic agreements. It is very well to determine the quantity required by the people. But the quantity required, or the quantity that will be demanded, depends upon the price. The monopolists are likely to fix this price at a level that represents a fair profit,[1] and they are themselves the judge of what constitutes a fair profit. The price is likely to be unduly high. The demand will then be low. Production will then have to be curtailed. Less of the product will be turned out than under competition. If only one industry applies this system the producers in that industry benefit. They are assured of profits. They are largely relieved of risk. But all other people pay higher prices for the product. The products of one industry become the costs of another. If some industries are monopolized and others are not, the non-monopolized industries find their costs increasing without a corresponding increase in the price of their products. More producers in the non-monopolized industries will fail than before. Monopolistic agreements are likely to develop in one industry after another. They become necessary in self-defense. They are likely to develop even in agriculture, the stock industry of small-scale production and many producers spread over a wide area, under conditions that make monopolistic agree-

[1] When monopolists restrict output and raise price above the competitive level to increase their net gain, this net gain does not represent true profit in the sense of return for business ability and assumption of risk. It may more truly be called "monopoly gain." Since the term "monopoly gain" is a little awkward, the term "profit" is used in this chapter instead.

ments hard to achieve and maintain. Once most or all industries are organized on a monopolistic basis with prices fixed at cost plus a "fair profit," the original monopolists find that their costs are much increased. They must raise prices once more and curtail output further, and so a new cycle of price-raising and restriction of output becomes a probability. Thus the natural result of a monopolistic policy that curtails output to a point permitting the product to be sold at cost plus a "fair profit" is a general restriction of output by all industries in turn, and then further restriction, and still further restriction, until, if the system does not break down before, we have the absurd result that all producers are producing scarcely anything so that all may sell at cost plus profit. With the ideals of the monopolist universally and thoroughly applied, all would be in rags, hungry, living in shacks, barely existing for lack of goods, since restriction of output — the basis of monopolistic prosperity — could yield no other logical result.

Another weakness of the monopolistic and restrictive system becomes apparent when a large number of producers of varying degrees of efficiency is kept in business. The price must be high enough to cover the costs of the least efficient — those who would fail under competition. The more able — those who could expand at lower costs and sell at lower prices — must refrain from expanding in order to maintain prices for the incompetents. This represents a source of waste that probably more than offsets the gains achieved in the way of elimination of waste discussed in the foregoing section.

10. Use of statistics to avoid wastes of competition. There seems to be possible a happy medium between large numbers of producers turning out goods blindly without adequate knowledge about the quantity they are likely to be able to sell at a price covering cost of production and such vicious monopolistic practices as those outlined. Producers could be kept informed by a centralized statistical agency gathering facts about each industry and disseminating among producers information on past demand, supply, and prices, on present plant capacity, probable future demand and supply, and probable future costs and prices. This statistical agency should preferably be a government bureau operated on an efficient basis, and capable, like a business organization, of publishing its

statistics promptly, and not, as sometimes happens with government publications, a year or two after their period of usefulness has expired. A good start along this line has already been made by our Department of Commerce at Washington. Such a service would eliminate many of the wastes of competition without generating the worse wastes of monopoly. Such statistics have been published by associations of business men called "open price associations." Open price associations, however, may be used readily to cloak monopolistic agreements to maintain prices and restrict output, and seem to have been so used in some cases. In some instances the activities of such open price associations have been found to be unlawful, but in two recent cases, known as the "maple flooring and cement cases" their activities have been held by the United States Supreme Court to be lawful within limits.

11. **Monopolies not resulting from pressure of competition.** Let us now turn from a consideration of monopolies and monopolistic agreements that grow out of competition to a consideration of monopolies that do not grow out of competition, but are brought into existence by other causes. Among these other causes are patents, copyrights, trademarks, special franchises, technical conditions, and limited natural resources. Governments, in order to encourage invention, grant patents to inventors. That is, they give the inventor, or any one to whom he assigns the right to his invention, the exclusive right to manufacture the article invented for a limited number of years. A monopoly based on such an exclusive privilege to manufacture may be called a legal monopoly. Unlike the monopolies we have been discussing, it has the support of the Government, whereas in the United States such monopolies as we have been considering are likely to be prosecuted by the Government as combinations in restraint of trade. Since patents are granted for a limited number of years monopolies based on them are temporary in character. However, a firm may keep exclusive control of some article almost indefinitely by judiciously inventing improvements on it about the time the patent expires. Monopolies not based primarily on patents often use patents as a means of maintaining their position and of preventing the growth of competition by acquiring exclusive rights to use of machines and devices patented by others.

A copyright, like a patent, represents a legal monopoly, but its use

is limited to one industry — the publishing business. Copyrights are granted to encourage the development of literature and the publication of other works not of a literary nature. Monopoly of this kind is limited in its scope, since no one publisher is given a monopoly of printing, but merely an exclusive right to publish designated books, articles, music, etc. Any reader may buy books, just as good, perhaps, from some other publisher, if any one publisher attempts to charge exorbitant prices. Practically no one questions the desirability of giving such copyrights. Unless protected by a copyright no publisher could afford to pay an author royalties on his work, since other publishers could immediately buy a copy and begin duplicating the first publisher's product without paying anything for the privilege. Without pay most writers will not write.

Trademarks are legally protected symbols, labels, or names, by which the holder's goods may be identified and of which he has the exclusive use. Others may manufacture an identical article, but may not use the same symbol, label, or name. The use of trademarks protects the manufacturer who has built up a reputation. either by advertising or otherwise, for producing a good product from having his product duplicated and sold under the same name by others. Only one concern sells Ivory Soap ("It Floats") and only one concern sells Gold Medal Flour ("Eventually, Why Not Now") and only one concern's pancake flour is plainly related to Aunt Jemima. Trademarks are used by monopolies to help maintain their position, but no one could reasonably object to a manufacturer's being given the exclusive right to call his product by the name he has invented and made favorably known.

12. **Public utility franchises.** Quite different in purpose and results from patents, copyrights, and trademarks are special or exclusive franchises given to public utility companies, such as street railway, gas, electric light and power, and water companies. Such concerns necessarily use public highways and city streets as a means of doing business. The street railway must lay its tracks down the street. Gas and water companies must lay their pipes along the streets to reach the homes of their customers. Electric light and power cables are strung along streets and highways. Such concerns must therefore apply to state or local governments for the

right to build their lines. The right to the use of public property for this purpose is a special franchise. Generally it is made an exclusive franchise for the simple reason that one water line, or gas line, or street railway on one street is enough to serve the people's needs, and more than one is too many because the extra line needlessly clutters up the street. Not only is it most economical and most convenient to have only one such concern of a kind operating on the same street — the same rule holds with regard to an entire city. Even if there were two gas companies or two street railway companies in the same city, they could not compete with each other unless their lines ran on the same streets. They must go to their customers. Their customers do not come to them. They cannot deliver their services beyond the end of their lines. In this respect they differ from manufacturing plants or stores. Public utilities for the foregoing reasons then have generally a complete monopoly, local in nature. There are some exceptions.

13. **Local railroad traffic.** Railroads might also be called a public utility, but they are usually not included under that head, first because they are so important in size that they are in a class by themselves, and second because their business differs in some respects from that of other public utilities. Railroads also are given right-of-way privileges, in the nature of a special franchise, but their business is only in part technically monopolistic like that of gas or light companies. Railroad traffic may be divided into two classes — local and through. On short hauls, or local traffic, railroads often have a monopoly, since there may be only the one line connecting two towns which are near together. But on through traffic there is naturally severe competition. For example, between Chicago and the Atlantic Ocean ports there were early four through lines of railroads — the New York Central, the Erie, the Pennsylvania, and the Baltimore and Ohio. Between practically any important city and any other there is more than one railroad. For this through traffic competition of the most severe type developed among the railroads, since, as already explained, railroads operate under conditions of decreasing cost and with heavy indirect costs. So long as they had unused plant capacity they were eager to gain additional traffic, since the few extra cars or the few extra trains could be handled with very little extra expense. The direct costs were small. The revenue from

extra traffic represented almost pure gain. But when, as has been pointed out, the railroads to get the additional traffic from one another forced down rates on a very large part of their traffic to a level that only covered direct costs, their indirect costs were not covered and they were all headed for failure. This led to railroad consolidations and to various kinds of monopolistic agreements, as similar conditions led to monopoly in manufacturing. Railroad business, then, naturally monopolistic so far as local traffic is concerned, was soon on the way to become monopolistic as a whole through the pressure of competition. Railroads will be discussed in more detail in a later chapter in relation to government regulation.

14. **Control of limited natural resources.** Some monopolies are based on control of limited natural resources. Examples of such monopolies are the diamond mines in Africa, the nitrate beds in Chile, and the anthracite coal deposits in Pennsylvania. It is conceivable that monopolies could get control also of the iron ore deposits or the copper deposits of the world. But these are so extensive that no one business concern has seriously attempted anything of the kind. In the case of the diamond mines and the nitrate deposits, control was fairly easily obtained because the diamond-bearing deposits and the nitrate deposits were limited in extent. Likewise the anthracite coal deposits in Pennsylvania extend over only about four hundred square miles.

15. **Associations of business men.** From the foregoing discussion it is evident that monopolistic rather than competitive conditions prevail over a very important part of the industrial field. In the public utility industries monopoly is almost complete and also in the local business of the railroads. In many important manufacturing and mining industries there is more or less monopolistic control over output and prices. Not only are there large combinations within these industries which individually control a substantial part of the total output, but there are price and output agreements among the supposedly competing establishments. Some important monopolies in manufacturing industries are maintained largely by means of patents and trademarks. Furthermore, in addition to the monopolies discussed in the foregoing sections there are many national, state, and local associations of manufacturers, merchants, and other business men, which to a greater or less extent maintain price and

output agreements, and operate to maintain the prices of their products somewhat above the free competitive level. For these reasons it is worth while to consider the principles according to which prices are determined under monopolistic conditions, and to this subject of monopoly price we now turn.

16. Aim of monopolists is greater net gain. We have been assuming in the course of the foregoing discussion that when monopolists get control of output and price, they restrict output and raise the price of their commodity. Here we will consider the basis of that assumption. It is obvious that monopolists strive for monopoly for a reason, and that reason is the possibility of greater gain for themselves. This greater gain can be obtained from three possible sources. Either the monopolists can obtain a larger share of the total business than before and make the same profits per unit of output; or they can by economies of monopolistic production reduce costs; or finally they can raise the price of their product. If the monopolists simply expand their proportion of the output, drive out their competitors, and neither reduce costs nor raise prices, we may view the matter with indifference from an economic standpoint, although the outcome may be undesirable from the social or political standpoint. If the monopolists gain from that source they do not interfere with the economic welfare of the country. If by monopoly they reduce costs and maintain existing prices for their product, they gain and nobody loses. The country as a whole gains, since its total wealth is increased by the extent of the monopolists' extra gains. There is, unfortunately, good reason to believe, however, that monopolists generally try to reap gains, not merely from extending their own business, or from reducing costs by economies of large-scale management, or elimination of wastes of competition, but by using their control over output to raise prices. There is statistical evidence to support this view and in some cases it is fairly conclusive. Economic theory also supports the conclusion that monopolists, once in control, restrict output and raise prices.

17. The law of monopoly price. We are not doing violence to the probabilities of the case if we assume that monopolists are self-interested persons seeking the greatest possible gains for themselves. Since the monopolist has control over the price of the product, we may then lay down as the law of monopoly price that the monopo-

list will aim to fix his price at the point which will yield him the greatest net gain. The monopolist cannot, however, charge any price he desires regardless of the quantity he throws on the market. He must reckon with the demand schedule for his product — with diminishing vendibility and marginal vendibility, just as competing producers must. He can, for example, refuse to sell an automobile to a poor man for less than $10,000, but he cannot make the poor man buy at that price. He cannot even make a poor man who is starving pay $100 for a loaf of bread unless the poor man has the $100. The poor man will starve and the monopolist's bread will remain unsold. The best the monopolist can do for himself is to estimate on the basis of past experience how many units of his product he would be likely to be able to sell at various prices, how much it would cost him to produce these various quantities, and then proceed to fix the price which might be calculated to give him the greatest net gain. We can illustrate the principle by a simple example. Suppose that the monopolist, taking all known factors into consideration, guessed that the demand schedule for his product and his costs of production for various quantities per unit would be as indicated in Table XXI.

Table XXI. Cost, Price, and Monopoly Profit

Quantity Produced	Cost per Unit	Price	Profit per Unit	Total Profit
100,000	$10	$12	$2	$200,000
200,000	8	10	2	400,000
300,000	7	9	2	600,000
400,000	6	7	1	400,000
500,000	5	5	0	0
600,000	4.5	4	−0.5	−300,000

Let us assume that when the monopolist gets control of the industry the output is 500,000 units produced at a cost of $5, sold at $5, and yielding no profit. Let us assume that he cannot reduce costs, and decides to raise the price in order to realize a profit, but demand is such that he cannot sell his total output of 500,000 at more than $5, any more than could the former competing producers. He would then restrict output and raise the price as high

as the restricted output would permit. According to the table he could sell 400,000 units at $7 a unit, but restricting output increases his costs to $6 a unit. We might assume that this is in part the result of higher indirect costs per unit as the existing plant becomes less fully utilized. His profits would then be $1 a unit, or $400,000. Further restriction of output increases his cost per unit, but permits a greater rise in price, so that when he produces 300,000 he makes a profit of $2 a unit, or $600,000. Still further restriction in output, he finds, increases his costs as rapidly as it permits a rise in price, so that his profits per unit remain the same and his total profits decline with output. His greatest net profit is obtained when he restricts output only to 300,000 units and raises prices to $9. For these 300,000 units buyers are paying more than for the 500,000 units formerly produced.

Let us digress for a moment from the main line of our discussion and note what would happen to our monopolist if because of monopolistic practices of other industries his cost were raised by 80 per cent, as he raised the price of his product 80 per cent above the competitive level. His costs are $7 per unit. Add 80 per cent to that and we have $12.60. This brings his costs $3.60 above price, and he must restrict further to escape loss. Perhaps he could not even avoid loss by restriction. He would find that monopoly is a double-edged tool that may cut the fingers of the wielder.

18. Conditions most favorable to raising prices and restricting output. To what extent it will pay the monopolist to restrict production and to raise price above the competitive level that prevailed before he got control depends upon conditions of demand and cost. As already indicated his total monopoly profits represent his profit per unit of output multiplied by the number of units produced and sold. If he finds that the demand is comparatively inelastic, that a considerable increase in the price reduces but little the quantity that can be sold, then it pays him to raise the price very high and sell what he can at the higher price. For example, if he can sell 1,000,000 units produced at a cost of $5 at a price of $6, his profits are $1,000,000. If now he should find that by increasing the price to $8 he could still sell nearly as much as before, let us say 900,000 units, and if his costs remained $5 per unit, he would then be making profits of $3 each on 900,000 units, or $2,700,000. If, however, he should find that when

he raised the price to $8 he could sell only 300,000 units, then it would not pay him to raise the price so high. He would then be making $3 a unit on 300,000 units, or $900,000, provided his costs remained the same per unit. That is to say a very elastic demand does not favor the monopolist in his attempt to raise prices.

Now let us suppose again that he had been producing 1,000,000 units at a cost of $5 and selling them at $6, and that he restricted output to 900,000 units, and found that he could get only $7 for that quantity, and that his costs per unit rose to $6. The advance in price would now be offset by the rise in costs and his profits per unit would remain as before, $1, and since his output would be smaller by 100,000 units than before, his profits would be cut down by $100,000. On the other hand, if his costs per unit in producing the smaller number had remained the same or decreased, then he would have made a profit of $2 or more per unit on the 900,000 units instead of $1 a unit on 1,000,000. His profits would have risen from $1,000,000 to $1,800,000 or more. That is to say, when a monopolist's costs per unit fall as he expands output, or rise as he contracts, conditions are less favorable for raising price above the competitive level than when costs increase or remain the same per unit when he expands output.

In brief, the conditions that favor the monopolist in raising prices above the competitive level are inelastic demand for his product and conditions of increasing costs. Conditions tending to discourage the monopolist from raising the price much above the competitive level are elastic demand and decreasing costs. Another way of stating these facts is this: When the amount by which price exceeds costs diminishes slowly or not at all as production is expanded, it pays the monopolist to expand rather than restrict output; when the amount by which price exceeds costs diminishes rapidly as production is expanded, it pays the monopolist to restrict output, and the more rapidly the spread between prices and costs diminishes as he expands the more it pays him to restrict, and the greater will be the difference between monopoly price and competitive price.

19. Automobile monopolist compared with the wheat monopolist. In the case of automobiles we have an industry of decreasing costs and elastic demand. If it should fall into the hands of a monopoly, prices of automobiles would probably be higher than under compe-

tition, but not so much higher as one might think. The monopolist, if he tried to raise prices, would find that the number he could sell would be greatly diminished. This would naturally lead to the production of a smaller number and the smaller number would cost more per car. It is a fortunate fact that most industries in which monopoly has been achieved wholly or in part are subject to such conditions of demand and cost that the monopolist finds it unprofitable to raise price radically above the competitive level.

If, however, the wheat-growing industry should fall into the hands of a monopoly, the outcome would be different. The demand for wheat is inelastic. People must and will eat, and most people in advanced industrial countries want white bread badly enough to pay a good price for it rather than go without it. Wheat is produced under conditions of increasing cost. By refraining from producing the last few hundred million bushels the monopolist would cut out the most expensive bushels to produce. The reward for restricting output would be great. Price would be much above the competitive level and average cost would fall.

20. Conditions favoring and not favoring raising prices far above competitive level graphically depicted. The principles stated in Section 19 and illustrated by the automobile and wheat industries may be graphically depicted as in Figures 8 and 9. In both figures price and cost are represented by distances along the line OY or lines parallel to it, and quantity produced is represented by distances along line OX or lines parallel to it. In both cases the quantity that would be produced under competition with demand as shown by the line DD' would be the quantity Of, and the market price would be Op, or fp', which would equal cost of production.

But in Figure 8 the line SS' represents the average cost of production, which decreases as output increases, as in the automobile industry, while in Figure 9 the line SS' represents the cost of production of the most expensive unit produced, which rises as output increases, as in the wheat industry. It must be noted, however, that the costs indicated by the line SS' of Figure 9 represent only costs of cultivation and marketing and do not include rent as a cost. If rent is added to cost, total costs per unit are the same for all units, and would be Op or fp' when the quantity Of is demanded at the price that covers cost of production of the most expensive unit.

The triangular area Spp' in Figure 9 would then represent the rent of the land used in producing the total supply. And the irregular area $OSp'f$ would represent costs of cultivation and marketing of the total crop. With this explanation of the figures in mind, let us note how they illustrate the effect of monopoly upon the quantity produced and the market price. We assume for the sake of simplifying the problem that the monopolist's costs in both cases are the same as competitive costs, when equal quantities are being produced.[1]

Consider first Figure 8, representing an elastic demand and decreasing costs. Under competitive conditions production would tend to expand until price fell to cost. It would tend to expand that

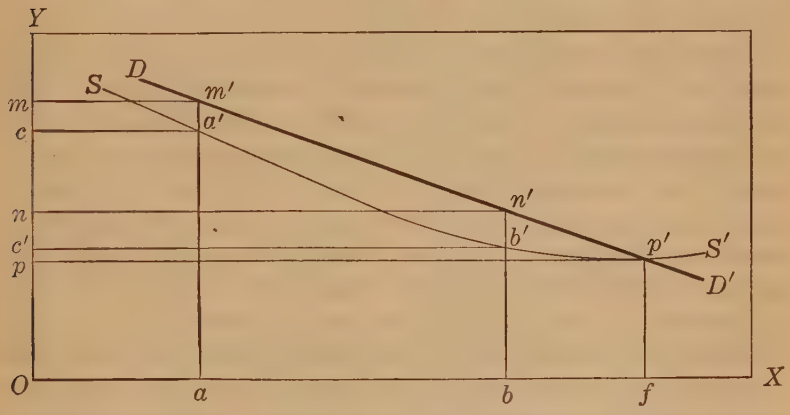


FIGURE 8. MONOPOLY PRICE: ELASTIC DEMAND AND DECREASING COST

far for reasons given in Chapter XIV, and possibly farther, but not much farther, for this would mean ultimate ruin to the producers. We may say, in short, that production would tend to fluctuate about the quantity Of and the price would fluctuate about the price Op, or fp'.

Under the same conditions of demand and cost, a monopolist might try to obtain a much higher price than Op, let us say Om. But at that high price the demand would be less than one third as great as at the price Op. This is the result of the elasticity of de-

[1] This leaves out of consideration a fact emphasized in earlier chapters, namely, that competitors do not have uniform costs of production, but this does not invalidate the reasoning in our illustrative case.

mand, a change in price having a relatively great effect on the quantity demanded. At the same time his costs per unit would be much greater than if he were to expand and obtain the economies of large-scale production. We are assuming here that it is not a question of restricting an output already large, as *Of*, but of not increasing an output still small. If we were considering the case of restricting an output already expanded to *Of*, the costs of producing the smaller quantity would be much increased per unit by the heavy burden of indirect costs resulting from the great investment in plant. But to return to our main argument, if he produced only the amount he could sell at *Om*, or the quantity *Oa*, his costs would be *aa'*. His profits per unit would be *a'm'*, and his total profits would be represented by the small rectangle, *mm'a'c*.

Obviously, it would pay him better to lower price to, say, *On*, at which price he could sell the quantity *Ob*, produced at the lower cost of *bb'*, or at a profit per unit of *b'n'*, and a total profit represented by the rectangle *nn'b'c'*, which is larger than the rectangle *mm'a'c*. Here, then, monopoly might not lead either to severe restriction of output or to a great increase in price as compared with competitive conditions. Figure 8 as drawn probably exaggerates rather than minimizes the restriction in output and the increase in price.

Consider now how different is the situation represented by Figure 9, showing an inelastic demand and increasing costs such as we have in the wheat industry. Under competition a demand as indicated by the line *DD'* would call forth a supply of *Of*. Part of this supply would be produced at a cost for cultivation and marketing alone of *Op*, or *fp'* per unit, but most of it would represent lower costs of that sort. But as already stated land on which wheat could be produced at less than the market price would command a rent which would be just sufficient to offset the difference in cost, so that for all producers, assuming them to be of equal ability, total cost, including rent, would be the same, namely, *fp'*.

Suppose now that a monopoly acquired all the wheat land used to produce the quantity of wheat, *Of*, and suppose that it raised the price from *Op* to a much higher price, *Om*. The demand being inelastic, the quantity sold would not be a great deal cut down, but only to *Oa*. The monopolist would thus make large profits. The profits resulting from restriction may readily be calculated from the

diagram as follows: The monopolist ceased to produce the quantity of wheat *af*, which he could have sold at the price *fp'*, or for a sum represented by the rectangle *afp'a''*. But he saved in expenses of cultivation and marketing the amount represented by the irregular figure *afp'a'*. His net loss here, then, was merely the small amount represented by the difference between these two figures, or *a''p'a'*, or the

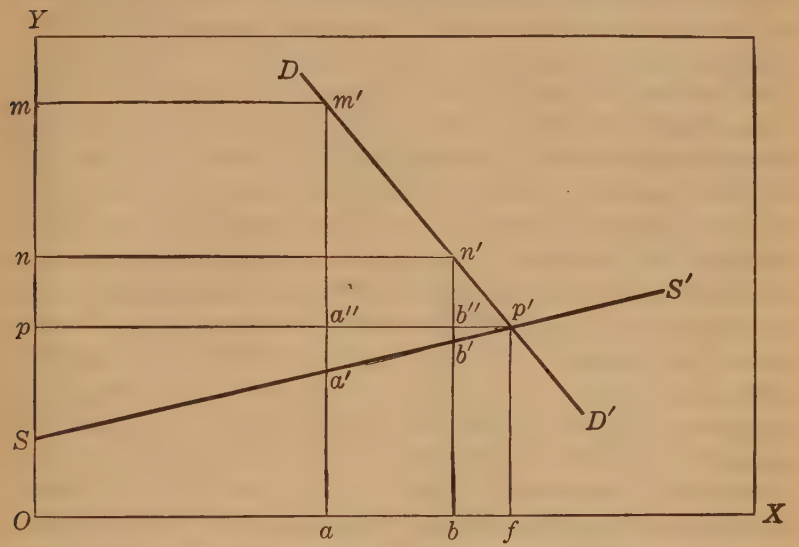


FIGURE 9. MONOPOLY PRICE: INELASTIC DEMAND AND INCREASING COST

rent on the unused land. Conceivably he might have avoided even this small loss by devoting the unused wheat land to other crops. To offset this possible loss, he gained an extra amount of *pm* per bushel on the quantity *Oa*, or a sum represented by the rectangle *mm'a''p*. This rectangle is much greater than the small triangle *a''p'a'*.

It would not have paid him to charge a much lower price, as *On*, and produce a larger quantity, as *Ob*, for in this case his profits would have been smaller, being represented, for reasons similar to those just given, by the difference between the rectangle *nn'b''p* and the small triangle *b''p'b'*.

From Figure 9 it is apparent that considerable increase in price would follow if a wheat monopoly could be established. But a

wheat monopoly is quite unlikely soon to be established, except with the aid of the government, by reason of the extreme difficulty of acquiring control of a large enough proportion of land suitable for wheat growing to control output and price. In the absence of a high protective tariff the wheat monopolist would need to control the wheat land in foreign countries as well as in his own. Similar difficulties would confront monopolies in other extractive industries based upon widespread natural resources. But with the increasing size of business combinations, often international in scope, such monopolies lie within the range of possible future developments.

21. Conditions under which a monopolist would not raise price above competitive level. Although we may assume that a monopolist, upon getting control of an industry formerly in competitive hands, will generally raise prices and then restrict output in order to dispose of all produced at the higher figure, there may possibly be cases in which it would not pay him to raise the price above the former level. If the monopolist found that when he raised price, sales fell off sharply, and that he had to restrict output sharply in order to sell all he produced, and that cost of production per unit rose more rapidly or even just as rapidly as price, either through the operation of the law of decreasing cost or of indirect costs, he would lose money by raising price. On the other hand if he found that a reduction in price greatly increased sales, and that the larger quantity produced reduced costs per unit more than the reduction in price, it would pay him to reduce price and expand rather than raise price and contract production.

If there were no limits to the internal economies of large-scale production, and costs consistently declined with every increase in the size of the establishment under the same management, then the monopolist, provided he were as able as the former competitors in the industry, would always be able to reduce costs, since he would have a larger business than any of his predecessors. Conceivably he might gradually reduce prices, stimulate sales by the reductions in prices, cut costs by additional economies of large-scale production, and thus constantly increase his profits with every expansion in output. However, there are good reasons for believing that there are limits to the economies of large-scale production, and that these limits are reached in important industries long before the whole

industry or a major share of it has fallen into the hands of a single concern. In some cases plants acquired by monopolists are run less efficiently afterward than before. The fact that our great industrial monopolies have frequently used unfair methods of competition, and that in the absence of such unfair devices, and sometimes in spite of them, the independents have grown more rapidly than the dominant concern, lends color to the view that monopolists do not always produce more efficiently than the smaller competing plants. What statistics are available on the subject tend to confirm the conclusions reached by economic theory — that the monopolist gains more by raising prices above the competitive level and restricting output than by reducing costs through superior management and by indefinitely increasing the economies of large-scale production and large-scale management. It is conceivable that monopolies might pursue a policy of enlightened self-interest and make no attempt to gain by raising prices above the competitive level by restriction of output, resting content with the gains achieved by economies of large-scale management. Such monopolies would not tend to reduce the total quantity of goods produced and might even increase it. Therefore, they would not become enemies of the State and would not be likely to be prosecuted by the Government. The only evidence that we have of such a policy is that some of our trusts have apparently not raised prices as high and restricted output as much as they might have done had they so desired.

EXERCISES

1. What is meant by horizontal combination? by vertical combination? What advantages may be realized by such combinations?
2. Because of internal economies of large-scale production a large plant can ordinarily manufacture more cheaply than a small plant. From this it may be argued that a single large producer having a monopoly of his product could produce at lower cost and sell at a lower price than any one of a number of competing concerns having smaller plants. What are the reasons for doubting that this is true?
3. It is sometimes argued that unfettered competition among manufacturers results in waste, and that this waste could be eliminated by agreements among the producers to maintain prices at a level to yield fair profits and to restrict output to the amount that could be sold at those prices. Explain how competition causes waste, and how agreements to restrict output and maintain prices would prevent waste. Do you think that such agreements are socially desirable? Why or why not?
4. On the basis of this chapter make a classification of monopolies. Compare

your classification with the one found in Ely's *Outlines of Economics* and Taussig's *Principles of Economics.*

5. State the law of monopoly price. With the following demand schedule and conditions of cost, what would tend to be the amount produced and the market price under monopoly? Demonstrate why.

Quantity Produced in Millions, and Quantity Demanded	Market Price	Cost per Unit
2	$200	$100
3	180	90
4	160	80
5	140	70
6	120	62
7	100	55
8	80	50

6. If in the foregoing example cost per unit had increased as rapidly with increase in output as it is shown above to decrease, what would have been the quantity produced and the market price?

For "References" for this chapter see end of Chapter XVI.

CHAPTER XVI

INDUSTRIAL MONOPOLIES AND GOVERNMENT CONTROL [1]

1. Monopolies and the Government. Of the various classes of monopolies discussed in the preceding chapter the three main types are:

(1) Industrial monopolies that tend to grow up under the pressure of competition in industries operating under conditions of decreasing costs and bearing the burden of heavy indirect costs.

(2) Public utilities, which because of their technical nature are generally given exclusive franchises and thus made lawful monopolies in the public interest.

(3) Railroads, which in respect to through traffic are in a position similar to that which breeds monopolies in manufacturing industries, and in respect to local traffic in a position similar to that of public utilities — being monopolistic by very nature.

Toward monopolies the people through their Government may take any one of four distinct attitudes:

(1) They may undertake to destroy monopolies wherever possible, and to maintain competitive conditions by prosecution of all who attempt to restrain competition for the purpose of obtaining a monopoly, or monopolistic power.

(2) They may tolerate private monopoly, or even encourage it, but regulate the profits of the monopolist through price control, or taxation, thus either protecting the public from the high prices which monopolists tend to charge, or obtaining through the monopoly public revenue making lighter taxes possible elsewhere.

(3) They may operate the monopolistic industry as a state enterprise, either with the idea of selling the product at cost, or possibly below cost, or with a view to using the state monopoly as a convenient engine of taxation.

(4) They may pursue a hands-off policy permitting the private

[1] In writing this chapter the author has drawn upon various primary and secondary sources but must acknowledge special indebtedness to Eliot Jones, whose *Trust Problem in the United States* is the best book on this subject.

monopolist to operate his business in his own interest — a condition which would tend to lead to restriction of output, and a price considerably above the cost of production.

In the United States no single policy has been applied to monopolies of all sorts, and in fact no consistent policy toward monopolies of any one of the three classes here to be considered. To some extent all four of these distinct policies have been applied and one might say, in some cases, two or three of them have been applied to the same industry at the same time, to the bewilderment of the people in the industry and the general public.

2. **The common law and monopoly.** The attitude of the Government toward monopoly in the United States may be discussed under three main heads, namely, common law, state statutes, and federal statutes. There seems to be a common impression that industrial monopolies were perfectly lawful before the enactment of the Sherman Anti-Trust Act of 1890, and became liable to prosecution only after that date. However, there were some state statutes directed against industrial monopolies before that time, and under the common law any combination or contract in restraint of trade was liable to be held unlawful by the courts if it was plainly against the public interest. The common law, perhaps it should be stated, consists of precedents based on custom found in decisions of English and American judges, which judges in later cases accept as the basis of their own decisions upon the lawfulness or unlawfulness of actions brought to their attention. Under this common law — inherited from England — our courts at various times have declared monopolistic agreements or contracts in restraint of free competition unlawful, and have thereby broken up such monopolistic organizations. The general principle running through most of these court decisions is that, although not all agreements or contracts among competing firms to restrict competition are unlawful, such agreements, contracts, or combinations do become unlawful if they become monopolistic and tend to raise the price of their products. A few examples may be of interest.

3. **The cotton bagging case.** Eight firms selling cotton bagging, an article used by cotton planters, mutually agreed not to sell any bagging without the consent of the majority of the parties to the

agreement, under a penalty of ten dollars for every bale sold. One member sold 740 bales in violation of the agreement and the manager of the association brought suit against him for damages. The court held that the agreement was a combination in restraint of trade, with the intent and the effect of raising the price of India bagging and that it was against public policy. Therefore it could not be enforced in a court of justice. The reader should note that here the combination was not penalized, but merely rendered powerless to enforce legally its contracts with its own members. The cotton bagging case illustrates the essential weakness of a monopoly based on a simple agreement among independent firms to restrict output or sales, and thus to raise prices. The resulting higher prices represent a constant and almost irresistible temptation for some member of the association to violate the agreement in order to increase his own sales under favorable conditions. He is the more likely to yield to this temptation if he realizes that he cannot be penalized for doing so, and if he fears that other members may violate the contract even if he does not.

4. The Standard Oil Company's Trustee device. This fatal lack of control over its members of a monopolistic combination that does not own or legally control the business establishments forming the monopoly led to the development of more effective and durable monopolistic devices. One of these was the "trustee device," invented, it is said, by an attorney of the Standard Oil Company of Ohio. This company, then owned and controlled by John D. Rockefeller and his associates, wanted to obtain a monopoly of the petroleum industry, and decided to use for this purpose the trustee device. The procedure was as follows:

A board of trustees was established in 1882, and to these trustees the owners of the various plants to be combined assigned title to their property, including the property of the Standard Oil Company of Ohio. The various business organizations taken into the combination included individual proprietorships, partnerships, and corporations. The owners of individual proprietorships and partnerships and the stockholders of the corporations received, in exchange for the property turned over to the trustees, trust certificates, representing claims to participation in the profits of the trust, as the combination was called. Each received certificates presumably in

proportion to the value of the property given up to the trustees. By this arrangement the board of trustees of the Standard Oil Trust obtained legal title to, or control of, all the plants concerned and these plants were thereafter operated under one management. Competition among them no longer existed. The formerly independent concerns were brought into the combination either by persuasion, including the promise of large returns from their trust certificates, or by threats of being driven out of business by the competition of the dominant concern. Once in, they were no longer their own masters, but merely creatures controlled by the trust, which held legal title to their property. There was here no danger that some member of the combination would violate his agreement and wreck the enterprise. A little later the Sugar Trust, the Cotton Oil Trust, and other trusts were formed similar in form to the Standard Oil Trust. The country became alarmed at the rapid growth of monopolistic combinations during the eighties, and this led to the enactment of the Sherman Anti-Trust Act of 1890.

5. The Oil Trust and Sugar Trust illegal under the common law. But before the Anti-Trust Act was brought to bear upon the trusts, they ran afoul of the common law. Suit having been brought against the Standard Oil Company of Ohio and the North River Sugar Refining Company of New York, a member of the Sugar Trust, the courts in both Ohio and New York held that such combinations were illegal. In the sugar case the court held that the North River Sugar Refining Company, a corporation chartered by the State of New York, had no power to surrender control of its affairs to a third party — the trust. The court properly gave no weight to the sophistical contention of the lawyers for the sugar company that it was the stockholders and not the corporation itself that turned the property over to the Trust. In the Ohio case, which came after the New York case, the court not only held that the contract with the trust was beyond the legal power of the Standard Oil Company, but also that the contract was unlawful in itself, since its object was to establish a virtual monopoly of the oil industry. All such associations it declared to be contrary to public policy and void.

6. Monopolistic corporations and the common law. Not only was the trustee device as an instrument of achieving monopoly held to be unlawful under the common law, but direct attempts by cor-

porations to obtain industrial monopolies also fell under the ban, as illustrated by the Diamond Match Company case, and the Distilling and Cattle Feeding Company case. In these cases and others similar to them, in which the monopolizing corporation became involved in lawsuits arising out of their contract, or otherwise, the courts held them to be unlawful enterprises and against sound public policy. Such monopolistic corporations were hampered in their enterprise by inability to enforce their contracts and by the liability of being deprived of their charters by the State. It appears, therefore, that the common law afforded the people of the United States considerable protection against monopolistic combinations. But as already stated alarm had been created by the rapid spread of monopoly and the people demanded positive action against the menace of high prices and restricted output of commodities. So Congress and the various state legislatures responded with anti-trust laws.

7. The Sherman Anti-Trust Law. To keep this chapter within reasonable bounds we must confine our discussion of anti-trust legislation to the federal laws enacted, omitting from consideration the various state anti-trust laws. Since the state laws are in many respects similar to the national laws and of less far-reaching importance, this omission will not be of great consequence. We will begin with the Sherman Anti-Trust Act of 1890, which, like the Sherman Act providing for the purchase of silver bullion, passed in the same year, was named after Senator Sherman of Ohio. The purpose of the Sherman Anti-Trust Act was plainly to make illegal industrial monopolies, or combinations to repress competition, in such industries as the oil, sugar, cotton oil, iron and steel, and to punish, by fine or imprisonment, or both, the guilty monopolists or conspirators. To insure the constitutionality of the law, however, it was so worded that it would be covered by the clause in the Constitution delegating to Congress the power to regulate interstate commerce. It was not monopoly or combination in the manufacturing industry that was made unlawful directly by the law, but rather restraint of trade or commerce among the several states. Section 1, which contains the gist of the law, reads as follows:

> Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with

foreign nations, is hereby declared illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

The fact that the law referred directly to restraint of trade or commerce rather than to industrial monopoly, at which it was presumably aimed, led to some peculiar and probably unforeseen results, as we shall point out in later sections of this chapter. But before taking up the discussion of the application of the Sherman Act, it will be necessary in the interest of a lucid presentation of that subject to note in broad outline the development of monopolistic tendencies in American industry after the common law court decisions holding illegal such trusts as the Standard Oil Trust and the Sugar Trust.

8. How the oil monopolists evaded the common law. First of all it should be noted that it is possible to break up by law the form of business organization under which a monopoly carries on without destroying the monopoly itself. This can be illustrated by the Standard Oil case. At the time of the unfavorable decision of the Ohio Supreme Court, the Standard Oil Trust, or, more precisely, the nine trustees of that trust, held title to the stocks of eighty-four companies, and had given in exchange for the property represented by these stocks 972,500 trust certificates or certificates of participation in the profits of the trust. In order to comply with the law and still retain their monopoly, the trustees resorted to the following expedient:

They turned over to twenty of their eighty-four companies the stocks of the other sixty-four. Then to dissolve the illegal trust they offered to trade to the holders of the trust certificates 1/972,500 part of the stocks of each of these twenty companies for each trust certificate held. The logical result of this transaction was to leave the trustees of the dissolved trust in the control of twenty corporations, with no more competition and just as much monopoly as before, for two reasons. First, the trustees themselves were the largest owners of trust certificates and therefore became the largest stockholders in the twenty corporations. Secondly, those persons who owned only a few trust certificates received only a few 1/972,500 parts of the stock of each of the companies — in many cases only a fraction of

one share. On fractional shares those companies refused to pay dividends. Therefore these small holders of certificates kept them and retained their claims to the income of the shares of stock still held in trust for them by the trustees. As long as the trustees retained the stock belonging to the small holders they could vote such stock as their own. These "unliquidated" shares of stock together with their own shares gave the nine trustees, as already stated, complete control of the twenty corporations which now held the property formerly combined in the trust. The trust had been "busted," but the monopoly endured.

Although the former trustees still retained their monopolistic power, as the controlling stockholders in the corporations formerly constituting the trust, the monopoly was now in a more precarious condition. In the first place some of these large stockholders might dispose of their holdings to outsiders and thus the centralized control might be destroyed. In the second place the "unliquidated" shares of stock were a possible source of further legal trouble, since the State might hold that the trust still existed contrary to law. In the third place the Sherman Act might be applied to the twenty companies combined through common stock ownership as a combination in restraint of trade. For these reasons the Standard Oil people, and other persons desirous of maintaining or obtaining monopolistic power, were on the lookout for some device by means of which monopoly might be achieved without the appearance of a "contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce."

9. Holding companies and monopolistic property-owning corporations. Two new devices were perfected and widely used during the nineties which the monopolists hoped would be beyond the reach of the common law and the anti-trust laws. One of these was a corporation owning the stocks of, and thereby controlling, enough of the other corporations in the industry to give it monopoly power. The other was a corporation owning outright the real property of enough of the business establishments in an industry to give it monopoly power. Both of these classes of corporations became popularly known as "trusts," although they were not really trusts at all, in the legal sense of the word. Legally, a trust is formed when one person turns over his property to another, the property to be managed by

the second, as trustee, in the interest of the first, who becomes the beneficiary of the trust, or often in the interest of some third party, who then becomes the beneficiary. The ordinary simple business trust is not a monopoly — as, for example, when a father places property in the hands of a trustee to be managed in the interest of his children, and such trusts are not illegal. It is only when the trustee device is used as it was in the Standard Oil case that it becomes a monopoly and illegal. Just as a trust is not necessarily a monopoly, so is a monopoly not necessarily a trust. But because our earliest industrial monopolies were organized as trusts, people generally came to think of a trust as being a monopoly and of monopolies as being trusts. Hence in popular language we speak of trusts and the trust movement, when, if we used more precise language, we should speak of industrial monopolies and the monopoly movement in industry.

10. The holding company an excellent monopolistic device. A corporation that owns the stocks of other corporations is called a "holding company." Since a corporation is legally a person, and since any person who owns the majority of the common stock of a corporation can by voting that stock control the corporation, a holding company needs to own merely a majority of the common stocks of the corporations it wishes to control. This being true, it is evident that the holding company is a good device — provided only it is held to be legal — to acquire monopoly in any industry in which the corporation is the dominant form of business organization. Suppose, for example, that in a certain manufacturing industry there are ten large corporations which among them control ninety per cent of the output. Suppose that their total investment amounts to $1,000,000,000. Suppose further that they have raised most of their capital by the sale of bonds and preferred stock, and that the common stock outstanding has an aggregate market value for all ten companies of $200,000,000. The holding company that wants to acquire control of these ten corporations would then need to invest only slightly more than $100,000,000 in the common stocks of the ten to obtain control of all of them, and thus to achieve almost complete monopoly of a $1,000,000,000 industry. The small group of men entering upon such an enterprise would not even require that much capital of their own. They might organize their own corpora-

tion — the holding company — with bonds, preferred stock, and common stock, and they could pay for some of the stocks to be bought with the bonds and preferred stock of their own company. Furthermore, they could part with some of the common stock of their own company — they need only a little over half of that to keep control. Theoretically the whole enterprise could be carried through with the investment of only a few million dollars of their own money. In actual practice, however, practical difficulties might be met which would require a larger sum than that just calculated, and in many cases the monopolists have invested substantial sums of their own money. Frequently the holding company buys not only a majority of the common stock of the acquired company, but practically all of it, and even the preferred stock and the bonds.

When the holding company buys only enough of the common stock of another corporation to control it, the second still retains an independent existence as a corporation. The first is merely its largest stockholder, and controls it as might any individual stockholder that held a majority of its stock. The controlled company is then called a subsidiary of the holding company. It has its own board of directors and officers, but these are of course men acceptable to the holding company. When the holding company acquires all the stocks of another corporation it may dissolve the other corporation. That is to say, as sole stockholder of the subsidiary, the holding corporation may vote to turn over the property of the subsidiary to itself, and to manage it thereafter with its own board of directors without going through the formality of electing a board of directors for the subsidiary. If the holding company does this with all its subsidiary corporations, it becomes a property-owning corporation and is no longer a holding company.

It is, of course, obvious that not every holding company need be a monopoly, or, in popular terminology, a trust. It becomes a monopoly only when it acquires control of a large enough part of the total output of the industry to control prices by limiting its own output.

11. Holding companies and the corporation laws of New Jersey. Up to 1889 corporations ordinarily had no power to hold stock in other corporations. In some cases corporations got special permission to buy stock in other corporations, but except in such cases the

holding company was unlawful. But by two laws, passed in 1889 and 1893, the State of New Jersey so amended its corporation law that any corporation chartered by that State might become a holding company. Since a corporation in this country may take out its charter from any State regardless of the State in which it carries on its business, these amendments to the New Jersey law opened the way to any corporation in the United States to become a holding company. Other States soon amended their corporation laws in similar fashion, so that this excellent monopolistic device, the holding company, seemed to have received widespread legal sanction. Since 1889 the holding company has been widely utilized to bring about the combination of formerly independent corporations under one central management, in many cases merely to the end of securing the economies of horizontal or vertical combination, but in not a few cases to the end of achieving control over output and price, or virtual monopoly. At the same time many such combinations, monopolistic or otherwise, have been effected by means of the property-owning corporation without the use of the holding company device.

According to Jones,[1] during the period 1887–1900 there were formed in the United States 235 industrial combinations with a capital of $1,000,000, or more, and with a total capitalization of $5,198,303,000. Of these 235 combinations he estimates that something like sixty to seventy-five achieved a monopolistic position. The industries monopolized included tin plate, paper, linseed, shoe machinery, tobacco, salt, and various others. It remains to note the application of the Sherman Anti-Trust Act to these monopolistic conditions. Let us return then to consider that law in relation to industrial monopolies and to observe some of the peculiar results of that law referred to in a preceding section. For lack of space the discussion must be confined to a half-dozen cases, each of which illustrates a particular point in the application of the Sherman Act.

12. American Sugar Refining Company case: monopoly of manufacture held not to be in restraint of trade. In 1892 the American Sugar Refining Company, which had gained control over the property formerly controlled by the Sugar Trust, and thereby controlled sixty-five per cent of all the sugar refined in the United States,

[1] Jones, *Trust Problem in the United States*, p. 39.

had undertaken to obtain practically a complete monopoly of the sugar refining industry by purchasing control of the E. C. Knight Company and three other independent sugar refining companies. The American Sugar Refining Company had obtained its monopolistic position by outright purchase of property rather than by ownership of stocks of subsidiary companies. It was a property-owning trust rather than a holding-company trust. That control over these four additional companies gave it a virtual monopoly was evident to every one aware of the facts. But when the Government of the United States through the Attorney-General brought suit under the Sherman Act, the Supreme Court held that the Anti-Trust Act did not apply to monopolies directly as such, but only to combinations, contracts, and conspiracies to monopolize trade. The Court held that manufacture is not commerce, and that refining sugar in Pennsylvania bore no direct relation to commerce among the States. This decision appeared to defeat the real purpose of the law and encouraged the development of monopoly in other industries. But more careful preparation of evidence in later cases by more efficient Attorney-Generals led to more favorable results, as may be noted below.

13. **The Sherman Act applied to railroads — Trans-Missouri Freight Association case.** A few years after the courts apparently had found that the Sherman Act did not apply to industrial monopolies against which it had obviously been framed, they found that it did apply to combinations of railroads against which it had not primarily been directed. A number of railroad companies had formed an association, known as the Trans-Missouri Freight Association. The purpose of this association was to maintain reasonable freight rates on interstate traffic in the Southwest. Because of the peculiar nature of railway competition such an agreement was not obviously against the best interests of the public and may in fact have been a good thing for the country. Nevertheless, the Government brought suit against the association on the ground that it was a combination in restraint of trade or commerce among the sevearl States, and therefore illegal under the Sherman Act. Obviously it was illegal according to the wording of that law. The railroad companies contended that the law did not apply to railroads, and that, even if it did, their agreement did not represent an unreasonable restraint of

trade. The Supreme Court in its decision in 1897 held not only that the law applied to railroads, but also that it covered all restraints of trade, whether reasonable or unreasonable. Obviously the Court was right, according to the wording of the law. This was merely the first of several cases in which the Sherman Act was successfully applied to railroad combinations.

14. The Sherman Act applied to labor organizations. One section of the Sherman Act provided that any person injured in his business or property by any other person by reason of anything forbidden in that act might sue and recover threefold damages. Rather unexpectedly this clause was applied to a labor organization. The United Hatters of North America, a trade union, affiliated with the American Federation of Labor, organized a boycott against hats manufactured by a Mr. Loewe when he refused to employ none but union labor. Alleging that this boycott injured his business, Mr. Loewe brought suit for damages under the Sherman Act. The courts held that the law applied in this case, and threefold damages were awarded, which the members of the union had to pay.

15. Standard Oil Company of New Jersey dissolved. It must not be supposed, however, that the Sherman Act was successfully applied only against labor organizations and railroad combinations, and not against industrial monopolies, at which it had been plainly aimed. The Federal Government has succeeded in a number of important cases in breaking up monopolistic combinations in the form of both holding companies and property-owning corporations. One of the most important cases was that of the Standard Oil Company of New Jersey. The Standard Oil Company of New Jersey was one of the twenty companies that fell heir to the property of the Standard Oil Trust after the trust had been declared illegal under the common law. When it became evident to the trustees of the former Standard Oil Trust that their combination might fall to pieces in fact as well as merely legally, they proceeded in 1899 to reorganize their New Jersey Company as a holding company under the amended corporation law of New Jersey. This concern then increased its capitalization by issuing $100,000,000 of common stock, and proceeded to exchange this stock for the stocks of the other nineteen corporations controlled by the trustees. Since the former trustees controlled the Standard Oil Company of New

Jersey, they made themselves directors of that company and as such controlled the other nineteen. By thus changing the name of their concern and its form of organization the Standard Oil magnates hoped to evade the law against monopoly. In this hope they were disappointed.

The Government brought suit against the Standard Oil Company of New Jersey and its subsidiary companies, and the courts held that the Standard Oil Company was a combination in restraint of trade and ordered the combination to dissolve. The dissolution was effected in 1911 by distributing among the shareholders of Standard Oil of New Jersey the shares of stock of thirty-three of its subsidiaries, the distribution being made in proportion to the number of shares each stockholder held in the New Jersey Company. Here, as in the earlier case of the dissolution of the Standard Oil Trust, the form of organization was destroyed, while the monopoly continued, at least for several years. The reason was this: the small group of men who held the majority of the stock of the New Jersey holding company held, after the dissolution and distribution of the stocks, a majority of the stock of each subsidiary. There existed, therefore, such a "community of interests" among these separate companies that competition could not be expected to be vigorous. With the passing of years, however, it might be expected that the stocks of the various companies would pass into other hands, new blood be introduced into management, and competition spring up. Whether or not there is now competition among the various Standard Oil Companies, the growth of new independent companies has put the petroleum industry at least in part on a competitive basis. That much is evident from the gasoline price wars that have been waged in recent years. It must be added, however, that although there is some evidence of competition there is also considerable evidence of agreements to maintain prices. Competition is not unfettered.

16. The tobacco combination dissolved. In 1907 suit was brought against the American Tobacco Company. The case was appealed from the Circuit Court to the Supreme Court, which in 1911 ordered the dissolution of the tobacco combination, holding it to be in restraint of trade and to represent an attempt to monopolize the tobacco industry. The dissolution of this organization was, however, much more difficult than that of the Standard Oil Com-

pany. The tobacco combination had acquired monopolistic power in various branches of the tobacco industry, as in plug tobacco, cigarettes, smoking tobacco, snuff. Some of the companies controlled by the American Tobacco Company as a holding company themselves enjoyed monopolistic power in their own field, as property-owning "trusts." The American Tobacco Company itself owned manufacturing plants which gave it some degree of monopolistic power aside from its control over other tobacco corporations through ownership of their stocks. The tobacco monopoly could, therefore, not be broken up even in appearance by compelling the holding company to distribute among its own stockholders the stock of the companies it controlled. Not only would there then have been that "community of interest" that was found among the various Standard Oil Companies after the dissolution of the Standard Oil Company of New Jersey, but several of the constituent corporations of the combination would still have held monopolistic power in their own branches of the industry. In other words the Government had to deal with monopoly achieved by direct ownership of manufacturing plants as well as with monopoly achieved by the holding company device. The complicated details of the actual method of breaking up the monopolistic organization, including the formation of new corporations to take over various manufacturing plants held by the American Tobacco Company, cannot be given here. It must suffice to state that after the complicated proceedings of dissolution had been completed, there was difference of opinion as to whether or not the monopoly still survived through the common interests, in the various pieces of the broken-up combination, of the very men who had controlled the combination. There was considerable evidence in favor of the view that the monopoly still endured.

17. The United States Steel Corporation — A "Good Trust." The Government brought suit against various other monopolistic corporations or combinations, and ordered the dissolution of several, including the Powder Trust, the Harvester Trust, the Glucose Trust, and the Meat Trust. In these cases, as in the two cases considered in detail above, there was reason to doubt that the decrees of the courts restored competitive conditions. In all cases it has been found difficult to unscramble an egg. Where competition

has sprung up after monopoly has been achieved, it has been due at least in part to causes other than court decrees.

It remains to consider briefly a case of a different sort from the foregoing. The Government brought suit against the United States Steel Corporation, which held a dominating position in the iron and steel industry, although it did not have a monopoly. Since it produced about half the total output, and since it made informal agreements with other large producers to maintain "stability" in the industry — that is, to restrict output and maintain prices above the competitive level — it did have monopolistic power. The Supreme Court in 1920, however, decided that it was not an illegal combination in restraint of trade. It was found to be, in the popular language of the day, a "good" trust, not a "bad" trust. It stabilized competitive conditions and did not unreasonably restrain trade. The policy of the United States Steel Corporation during the six years since that decision seems to have justified the attitude of the Court. It has shown no marked tendency to restrict output or maintain prices far above a competitive level. Judge Gary, for many years the dominating personality in the Steel Corporation, urges publicly that iron and steel producers openly restrict output to the extent that will permit them to realize a fair return on their invested capital, and asks the coöperation of Government officials in keeping such restrictions "reasonable" and giving them the sanction of the law. It would be hazardous to state that such a policy of legalizing restraint of trade by the Government would work well. But such a policy does present interesting possibilities. If pursued intelligently and with moderation it might mean in the long run more iron and steel and lower prices than would result from alternate periods of destructive competition and unreasonable restraint of trade — from alternate periods of overproduction and underproduction. "If pursued intelligently and with moderation" is, however, a large qualification, a big "if." Still, such a policy may be more productive of good than that sort of prosecution of "trusts" which goes after the combinations with hammer and tongs and literally tears them to shreds on the surface, but leaves underground connections which hold them intact.

18. The Clayton Act. Twenty-four years after the enactment of the Sherman Anti-Trust Act two other laws, which may properly

be considered amendments to the earlier law, were passed. One of these was the Clayton Act, and the other the Federal Trade Commission Act. The main provisions of the Clayton Act are these:

(1) It exempts labor and agricultural organizations from the operation of the anti-trust laws.

(2) It limits the power of holding companies to acquire stock in other corporations for the purpose of repressing competition or creating monopoly, and limits the extent to which the same group of men may serve as directors of more than one bank or other corporation.

(3) It prohibits certain trade practices classed as unfair methods of competition.

The Clayton Act added very little to the effectiveness of our federal anti-trust legislation. The clauses enumerated above indicate that the law was framed in the light of twenty-four years of experience with the Sherman Act. It was designed to prevent prosecution of labor organizations for restraint of trade, as in the Danbury Hatters' case; to encourage rather than to discourage combination among farmers, who had combined too little for their own good rather than too much for the public good; and to prevent more effectively than the Sherman Act the development of industrial monopolies and the unfair methods of competition by means of which large industrial combinations had commonly destroyed competition. It has not been particularly successful in accomplishing any of these purposes. The law has since again been applied to labor organizations, the farmers have not organized to stabilize production, and industrial combinations in restraint of trade have by no means disappeared from the land.

19. The Federal Trade Commission. The Federal Trade Commission Act provided for the appointment by the President of the United States of a commission of five men primarily for the purpose of maintaining higher standards of competition in business. The Commission has power to make investigations of the methods pursued by business concerns, and may call upon business organizations to submit to it statistical reports on their business operations. Business men may complain to the Commission if their competitors use unfair methods of competition to draw trade away from them,

and obtain relief through the Commission. The Federal Trade Commission has condemned as unfair methods of competition the practice of misbranding commodities, bribing agents of prospective customers, temporarily selling goods below cost to drive out competitors, and so on. A commission such as this may undoubtedly do much to promote higher standards of competition, and the Federal Trade Commission has had a fair measure of success. Unfortunately, however, it has been the victim of disagreements among its own members, some of whom are inclined to deal more drastically with offenders than others. Furthermore, it must have the coöperation of the Attorney General and the courts, if it is to work effectively, in carrying on its investigations and in enforcing its decisions, and this coöperation has not always been forthcoming. Its greatest success has been achieved when it has been able to secure the coöperation of the business men in the industry in which unfair competitive methods have been practiced. It has not been notably successful when it has tried to compel business organizations to report to it statistical facts about their business, or has otherwise tried to use force rather than persuasion. It is to be hoped that the Commission may survive attacks made upon it, increase its usefulness, and with the coöperation of the more enlightened business men of the country maintain competitive conditions in American industry.

20. **Difficulties of administration and interpretation of anti-trust laws.** The operation of our anti-trust laws, both state and federal, has been to many far from satisfactory. Business men, particularly big business men, complain that they interfere too much with business. Radicals assert that they have done little to curb monopoly, and leave the mass of the people subject to economic oppression by the favored few. Difficulties of administration and interpretation arise. The boundary line between combinations of business concerns to achieve merely economies of production and management — and therefore presumably in the public interest — and combinations organized to destroy competition and establish monopolies — and therefore abhorrent — is not clearly defined. Neither is the boundary line between fair and unfair methods of competition. There is no obvious difference in form of organization between an association of business men organized for legitimate trade prac-

tices — such as drawing up standards of credit practice, standardizing sizes, as of clothing, standardizing or reducing the number of designs for purposes of economy and superior service, publication of trade statistics, and other trade information, and so on — and an association organized for the purpose of fixing prices and restricting output and throttling genuine competition. There have been, therefore, contradictory court decisions, so that one day a thing seems legal and the next illegal; for example, publication of trade statistics by "open price associations," or refusal by manufacturers to sell their product to price-cutting retailers, and so on. One of the greatest defects, in fact, of our anti-trust policy has been that of inconsistency, giving rise to the great evil — uncertainty.

21. Continued Government regulation of business combinations desirable. Although it is more difficult to apply anti-trust laws wisely than to make them, and although their application in this country has been far from satisfactory, some measure of success has been achieved, and our Government should continue its efforts to maintain competitive conditions in the field of manufacture, mining, and trade, where monopoly is likely to develop without some sort of government control. There is little doubt that in these branches of industry monopolies are undesirable despite certain economies that may be alleged in favor of monopolistic organization. As already indicated, the wastes of competition may be largely eliminated by a limited amount of combination and coöperation of business establishments which merely modify competition in the interest of stability rather than eliminate it. To secure just enough coöperation among business establishments to stabilize industry and avoid excessive wastes of competition, and yet to steer clear of monopolistic conditions involving unreasonable restriction of output, and monopoly prices, requires not only able public officials, but enlightened leaders of business striving to accomplish that purpose. There is reason to believe that many of our leading business men are even now willing to work toward this desirable end and that the people, no longer thrown into panic by signs of any sort of business combination, will through the Government permit a reasonable amount of organization of business in the interest of stability.

Business men who object to government interference with business, either because it annoys them personally or because they be-

lieve it to be against the best interests of the country, should set their faces against monopolistic practices, particularly, as is likely to be the case, if these practices include unfair methods of competition and result in substantial restriction of output and higher prices. To try to escape the evils of competition by destroying competition itself and establishing monopoly by means of the various abhorrent practices monopolistic combinations have used in the past is simply to invite government regulation of prices, and possibly government ownership on a far-reaching scale. That such would be the inevitable outcome of monopoly in the industrial field is obvious from the fact that it has been the outcome in the field of public utilities and railroads, which are regulated by governments and in many cases government-owned precisely because they have been monopolies. Of all possible forms of business organization in a democracy the least likely to be long tolerated is a private unregulated monopoly employing the various unfair tactics that such monopolies apparently must pursue to beat down competitors.

EXERCISES

1. On what grounds were the Oil Trust and the Sugar Trust held to be illegal under the common law?
2. Explain the difference between the trustee device and the holding company as a means of monopolizing an industry.
3. State concisely the results of the dissolution of the Standard Oil Trust (trustee device) and of the dissolution of the Standard Oil Company of New Jersey (holding company).
4. What difficulties arise in the administration of anti-trust laws? If the Government is unsuccessful in its attempts to prevent monopolization of manufacturing and mining industries, what will be the probable outcome — unregulated private monopoly, government regulation of prices, or government ownership? Why?

REFERENCES

I

Ely, R. T. *Outlines of Economics* (1923 edition), chapters 12 and 13.
Hobson, J. A. *Evolution of Modern Capitalism*, chapters 7–9.
Marshall, Alfred. *Industry and Trade*, book III, chapters 1, 2, 7, and 8.
Marshall, L. C. *Readings in Industrial Society*, sections 281–293.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 84–93.
Seager, H. R. *Principles of Economics* (1923 edition), chapters 13, 23, and 25.
Taussig, F. W. *Principles of Economics* (1921 edition), chapter 15.

II

Jones, E. *Trust Problem in the United States.*
Macrosty, H. W. *Trust Movement in British Industry.*
National Industrial Conference Board. *Trade Associations, Their Economic Significance and Legal Status.*
Naylor, E. H. *Trade Associations.*
Ripley, W. Z. *Trusts, Pools and Corporations.*
Stevens, W. H. *Industrial Combinations and Trusts. Unfair Competition.*

CHAPTER XVII

PUBLIC UTILITIES AND GOVERNMENT CONTROL

1. Monopoly in public utility enterprises inevitable; why this is true. As indicated in Chapter XV, public utility corporations, such as electric light and power, gas, and street railway companies, are usually given exclusive franchises by the State and thereby become legalized monopolies. But such enterprises tend almost inevitably to become monopolies because of the very nature of their business. For example, when a gas company has laid its mains along the streets of a city, it is in a position to supply gas to every one along those streets. It can meet any reasonable increase in demand for gas without laying new mains or increasing the size of the old. It need merely generate more gas in the plant it already has, send it through the existing mains, and possibly connect these mains with a few additional buildings. It has met the cost of installing its plant, involving heavy indirect costs. Expansion in business means merely additional direct costs. Suppose, now, a competing gas company should undertake to operate in the same city. Whatever new business it might develop, or whatever old business it might take away from the established company, would cost it more per unit than it would cost the old company to develop or retain it; because for the new company it would involve erecting a new plant. Out of this business the new company would then have to meet both direct and indirect costs, whereas the old would need to meet only the direct costs. By the mere threat of cutting prices, or rates, to the point which covered only direct costs, the old company might discourage any attempt to build a competing plant, since such price-cutting would permit the new company to earn nothing on its invested capital. If the new company were to go ahead and build its plant anyway, cut-throat competition would probably result. Both companies would be tempted to cut rates until both were making only operating expenses or less, on the principle that any additional business acquired which a little more than covered the extra operating expenses would leave something over

in the way of a return on the invested capital. As a consequence neither company would earn a return on its invested capital.

When this state of affairs had been reached, the two competitors might agree to maintain rates at a reasonable level and to divide the business between them on some satisfactory basis. Unless the business were regulated by Government they would probably try to fix the rate on the principle of monopoly price — the level that would yield them the greatest net return. Because of the unnecessary duplication of plants the two companies combined would then have smaller profits than the first had had alone. If the two could not come to an agreement on these terms, competition would continue; and in the hope of driving the other company out of business and establishing monopoly control, one of the two would cut its rates so low that not even operating expenses would be made. Thus it appears that competition under such circumstances either would not appear or would be short-lived. Similar considerations apply to other public utility enterprises. The question might be raised, Why should competition here be more severe and more likely to lead to monopoly than in manufacturing? There are four main reasons. First, the capital investment is heavier relatively to operating expenses than in manufacture, hence indirect cost is a greater part of total costs. Second, the business of the typical public utility is strictly local. All the business it can get is located on its lines. If it loses that, it cannot turn elsewhere for more, whereas a manufacturing plant deprived of one market may make another for itself in some other section. Third, the plant of the public utility is highly specialized. It can generally be used only for the purpose for which it has been designed. In brief, capital invested in public utility enterprises that do not pay is lost. Fourth, the competitors are so few in number that relief from the pressure of competition cannot readily be obtained by forcing some of the higher-cost producers to suspend business, as can often be done in manufacturing.

2. **Monopoly here also desirable.** Possibly by vigorous government action some sort of competition might be maintained among public utilities, but this is not desirable. As already indicated in another chapter, more than one gas company or street railway company on one street is a needless encumbrance. One line will serve the people as fully as two. More than one street-car line overcrowds

the streets, and more than one gas main involves an unnecessary amount of digging up and repairing of streets. Similar considerations apply to other public utilities. In the case of telephone companies there is the special consideration that two companies give less service than one, unless each subscriber has two telephones — one from each company — since the party one may desire to call may be on the other line. Monopoly being, therefore, not only natural, but also desirable, it has come to prevail in the field of public utilities. But the people have not been content to permit such monopolies to remain unregulated in private hands. They have not been inclined to pay rates based on the principle of the greatest net gain to the monopolists. The world over we find public utilities either regulated or owned by Government.

3. Government regulation versus government ownership. Which of these two policies — private ownership, with rates regulated by Government, or government ownership — is the better has not been clearly determined. It depends upon circumstances. In favor of government ownership it is urged that the Government will be more likely to operate the public utilities in the public interest than will selfish private corporations. Whether or not this is true depends, of course, upon the quality of our Government and government employees. It is urged that Governments can borrow money at lower rates of interest than private corporations; that they could thereby reduce fixed charges, or indirect costs, and in that way reduce rates, even if rates under private management are already down to a cost of production level. But not all Governments can borrow at lower rates than all private corporations; our railroads now borrow at lower rates than some of the leading Governments of Europe. Governments can only borrow at low rates when investors have confidence in them — when the return of the capital, with interest, is assured. Loans to Governments extensively engaged in industry, if the business enterprises should not turn out well, would become risky, and the rate of interest would then rise. So, again, it depends upon the Government. Furthermore, indirect cost, or interest on invested capital, is only part of the cost. The actual operation of the properties might become more costly rather than less, and this might more than offset lower fixed charges. It is further urged in favor of government ownership that private

ownership, with the necessary government control, involves costly duplication — we must have one organization to run these enterprises and an entirely different organization to control that organization. If the Government could operate these enterprises at the same cost as private management does, and no less, it would still pay to have them government-owned. The gain would be represented by the present expense of regulation — a considerable sum. Still another argument in favor of public ownership is that privately owned public utilities are a corrupting influence in Government. But this seems a doubtful sort of argument. If our government officials are so dishonest that they may easily be bribed, shall we then turn over to them the management of billions of dollars' worth of property? Or is it perhaps to be assumed that with the adoption of the policy of government ownership we shall have an entirely honest set of officials?

Professor Taussig points out in this connection that the economic characteristics that mark an industry as fit for government ownership are monopoly and maturity. Now, while public utilities are monopolies, they have not yet reached maturity. They are still in process of development. New inventions and new methods are still being applied, and these he thinks are more likely to be applied under the spur of private management seeking private profit than by government employees. In fact, one might well raise the question whether any industry ever reaches absolute economic maturity. The most one could say positively is, that after a certain stage has been reached in the development of an industry, no further great and revolutionizing changes are likely to be made in the near future. But even if an industry has the earmarks of monopoly and maturity, government ownership is hazardous unless public servants are competent and reliable. From that point of view we, in the United States, have not attained the best European standards.

4. Government ownership less common in the United States than in Europe. Whatever may be the relative merits of government regulation and government ownership, they can be determined better in practice than in debate. On the whole we are at present committed to the policy of private ownership with government regulation in the United States. There are, indeed, many examples of public ownership in this country, mainly in the case of water-

works, but also in other fields, as electric light and power companies and gas plants. In European countries public ownership has made far more progress, and covers not only water and light companies, but street railway, telephone and telegraph, and railroad companies. This has been due largely to the fact, or at any rate has been made possible by the fact, that England, France, Germany, and some other European countries have developed a more efficient body of public servants than we have in this country. Much has been written about the comparative results achieved in government operation of railroad, telephone, and telegraph systems in Europe and in private operation in the United States. In the main these comparisons seem to favor private ownership and operation, but because of great differences in conditions here and in Europe they are not conclusive.

5. Monopolistic conditions the fundamental reason for government control. On the peculiar nature of public utilities that makes them a fit subject for public regulation a curious misapprehension seems to be almost universally entertained. The common opinion seems to be, quite naïvely, that public utilities must be publicly regulated because they are public utilities. If pressed for an answer as to why these particular industries should be called public utilities, the average citizen, or at any rate the average college student, will reply that it is because they produce something the public must have. But that answer applies also to grocery stores and butcher shops — they also produce something the public must have. The real reason why public utilities, more than other corporations, except railroads and banks, require government regulation is that they are monopolies. They are monopolies by technical nature, and their monopoly is confirmed by their exclusive franchises. To the extent that monopolies develop in other industries, government control tends to spread to them also. But in manufacturing, mining, and merchandising, government control in this country has taken the direction of attempts to destroy monopoly and to maintain or restore competition, as outlined in the preceding chapter. If that policy fails to accomplish its purpose, then government regulation of industrial monopolies will proceed in the same manner as government regulation of public utilities and railroads, as outlined in this and the succeeding chapter. In the case of public utilities and railroads, government regulation is facilitated by the fact that

these corporations must turn to the Government for special or exclusive franchises, and for the right of eminent domain — that is, the power to compel private citizens to sell to the corporations at reasonable prices property required for right of way. But it must not be supposed that a monopoly would be free from government control just because it was not required by the nature of its business to ask special favors of the Government.

6. Satisfactory service and reasonable rates the primary objects of government regulation. The primary purpose of government control of public utilities is to insure the public reasonably satisfactory service at a reasonable price or rate. The reader perhaps hardly needs to be reminded that the rates of telephone, telegraph, gas, electric light, and street railway companies are simply another word for prices of the goods or services they supply. Under competitive conditions, if the buyer is not satisfied with the service and prices he gets from one concern, he can turn to another. Competition thus tends to regulate both service and price. But with monopoly the buyer must buy from the monopolist and pay the monopoly price, and if this price is high and the service poor, he has no alternative except not to buy at all. This is an almost impossible alternative, since most of the products of public utilities are thought of as necessaries of life.

Services rendered by public utilities may be considered reasonably satisfactory when they are of good quality, regular, or continuous, and supplied in ample quantity; in other words, when they are so rendered as to impose neither hardship nor unnecessary discomfort upon the public. They have been held to be provided at a reasonable price when the prices or rates are just high enough to cover cost of production, including a reasonable return on the capital employed and salaries of the corporation officials. The reader should be reminded that a reasonable return on capital should include not only pure interest, such as one receives when buying riskless investments like high-grade government bonds, but something more than that to cover the risk the investor runs of losing his principal. But in the case of both railroads and public utilities in this country the courts have apparently held this risk to be of small importance, since a reasonable rate of return on invested capital has generally been held to be about six to eight per cent. The basis of this theory

of reasonable rates for public utilities is sound enough. Under competitive conditions the price of the product does tend to hang around the cost of production, including in cost a fair return on the invested capital and salaries for the managing officials of the competing business concerns. It seems eminently fair then to protect the public from rates higher than that, and to concede to the public utilities a rate at least that high. The difficulty, however, of regulating public utility or railroad rates lies not in finding a theory of reasonable rates, but in applying the theory once it is accepted.

7. Method of fixing reasonable rates by public service commissions. The task of regulating public utility rates and services in this country rests largely in the hands of the various state public service commissions. To fix a rate for a gas, electric light, or street railway company, or some other public utility company, at a level that will yield a fair return on the investment does not offhand seem very difficult. But the public service commissions entrusted with that power must proceed substantially as follows:

For each public utility plant in the State, the commission must determine total expenses of operation, including not only such items as wages, salaries, cost of raw materials, and supplies, but an allowance for the construction or purchase of new plant and equipment when the old is worn out, or a sum representing the amount of depreciation in the plant and equipment from year to year. In other words, it must find what sum set aside annually will pay current expenses of operation and either keep the plant in good condition or replace it when worn out.

Second, it must determine the value of the plant and equipment, or, in short, the investment.

Third, it must determine what rate of return, as 5, 6, or 8 per cent, would be reasonable on an investment of that particular kind.

Finally, it must fix the rate just high enough to pay the operating expenses and depreciation as calculated above and leave enough over to pay the calculated fair return on the value of the investment.

The meaning of the foregoing can perhaps be made plainer by a simplified example: Suppose an electric light and power company had an investment valued at $100,000,000, and that annual operating expenses and depreciation amounted to $14,000,000. Suppose that the public service commission, with the approval of the state

legislature and the courts, had fixed 6 per cent as a fair return on the investment. Then the rates on electric light and power sold by that company would have to be fixed at a level that would yield annual gross earnings of $20,000,000. In that case, after deducting operating expenses and depreciation, the company would have left $6,000,000, or 6 per cent as a return on the investment of $100,000,000.

8. Calculating operating expenses. To calculate operating expenses, not including depreciation allowances, is a comparatively simple task. It is one that every large successful business concern must perform in some fairly satisfactory manner in its own interest. It requires only that a good accounting system be installed. Likewise the depreciation allowance that must be added to other operating expenses to get the real cost of operating the plant year after year is not difficult to determine, at least approximately. A good engineer can calculate the probable life of a machine or building, and if, for instance, a machine may be calculated to wear out in ten years, and costs $10,000 new, a proper depreciation allowance would be $1000 a year. So with other items of that sort. If a corporation has the services of a good accountant and a good engineer, it can calculate its operating expenses with some degree of accuracy.

One difficulty of government regulation that arises in this connection is lack of power on the part of the public service commissions to compel the public utilities to keep, and make public, adequate accounts.

9. Value of the investment in a non-regulated business is the capitalized value of the income. The hardest problem for the public utility regulating commissions to solve, however, is not that of determining the operating expenses including depreciation, but of determining the value of the investment on which a reasonable return is to be allowed. The nature of this difficulty will be more readily understood if we note what determines the value of the investment in any ordinary non-regulated business enterprise. We must revert to our theory of prices of producers' goods. The general principle is that the price of any particular producers' good is determined by the price of the product produced from it or with its aid, minus all other costs of production. For detailed discussion of this principle the reader may turn back to the chapter on demand schedules for pro-

ducers' goods. It is only an amplification of this idea to state that the value as an investment of any business organization, including both its tangible property, such as plant and equipment, and its intangible property, such as patents, special privileges, good-will, efficiency of operation, and the like, is determined by its net income, or the difference between its operating expenses and gross earnings or revenue. If this net income were to be enjoyed only one year, then the price that might be paid for the whole concern would be just equal to this income. Since, however, this income may be expected in most cases to keep coming in year after year, with some fluctuations in size, the price one may pay for the organization will be the present value of all the prospective annual incomes for an indefinite time. A simpler way of putting this, which means exactly the same thing, is that the value of the concern may be determined by capitalizing the net income, at the current rate which investors consider a fair return on that particular kind of an investment.

10. An example of capitalized income: how changes in income cause changes in capitalized value. For instance, if a patent medicine manufacturing corporation should have operating expenses of $800,000 a year, and gross revenue of $1,000,000, its net income, or its value to its owners for one year, would be $200,000. If it appeared quite probable that the income would remain at that figure annually for an indefinite number of years, its owners would value this business at the capitalized value of a $200,000 income at a moderate rate of return, say 10 per cent, or $2,000,000. If they cared to sell out, they could very likely get that much for it. The longer the concern operated with such satisfactory results, the more certain would seem the annual income, and the lower would be the rate at which it would be capitalized. If investors could be convinced that the income were absolutely certain to remain at least as high as $200,000 a year, they would be willing to pay for it a price so high that they would get a return of only about 5 per cent on their investment, or about $4,000,000. If the income were capitalized at the low figure of 5 per cent, it would represent practically pure interest; if capitalized at 10 per cent, it would represent, say, 5 per cent interest, and 5 per cent payment for risk of losing the principal. Anything that tended to increase the net income or to make it more certain would tend to increase the valuation placed on the

concern by investors. Conversely, anything that tended to diminish the income or to make it less certain would tend to decrease the valuation placed on the concern. Since there are innumerable circumstances and conditions that might bring about one or the other of these results, the value of a business organization is constantly fluctuating. The proof of this may be seen in the fluctuations in the prices of corporation stocks on the stock exchange.

If our assumed patent medicine corporation, with its $200,000 income, had outstanding 100,000 shares of common stock, and no preferred stock or bonds, and its income were considered fairly safe, but by no means certain, so that investors would be willing to buy at a price which would yield them 10 per cent on their investment, the shares of the corporation, if listed on the New York Stock Exchange, would sell for $20 each, since each share would represent a claim to $2 income a year. If investors and speculators had good reason to believe that the earnings were to increase to $4 per share, the stock would rise to $40. Thus changes in stock market quotations represent changes in valuations placed on corporations by competing investors, or far-sighted speculators, who take into consideration not only past income and present income, but probable future income.

11. How changes in the interest rate cause changes in the value of investments. It should be noted, too, that the rate at which the income is capitalized is affected, not only by the certainty of the income, but also by fluctuating conditions of the money market. At some times safe investments can be had at a price that yields the investor more than 6 per cent, and at others the most an investor can get with safety may be less than 4 per cent. What the basic or pure interest rate is may be determined approximately by calculating the rate yielded by United States bonds bought at the market price. During the seven years 1920–26 this rate ranged from above 6 per cent to below 3.75 per cent. Thus the valuation of a corporation as an investment may rise or fall sharply independently of any change in the size or certainty of its income. For example, a business organization, with a fairly regular income of $120,000, might be valued at $2,000,000, representing its income capitalized at 6 per cent. But a general rise in the rate of interest of 2 per cent might

result in this concern's valuation being reduced to $1,500,000, representing its income capitalized at 8 per cent.

12. Why public service commissions cannot base their valuations on capitalization of income. The main idea to carry forward from the foregoing discussion of the valuation of non-regulated business concerns is that the value of the investment, as estimated by investors and represented by stock market quotations, depends upon the net income — upon the difference between the gross revenue and operating expenses. But this method of determining the value of the investment cannot be used by public service commissions in fixing a valuation on which a fair return is to be allowed, for the following reasons: The stock market valuation is, as stated, the capitalization of the net income. The net income is the difference between operating expenses plus depreciation and gross revenue. Gross revenue represents simply the total number of units of goods or services sold multiplied by the price per unit, or the rate. Therefore the stock market valuation is largely determined by the prices or rates the public utility corporation charges. If the public service commission then accepts that stock market valuation, it must justify the rate in existence. It must do this because if it reduced the rate it would thereby reduce the valuation. For example, if an electric light and power company in the absence of public regulation had a gross revenue of $24,000,000, operating expenses and depreciation of $12,000,000, and a net income, therefore, of $12,000,000, and if this net income had been capitalized by stock market investors and speculators at 8 per cent, the market value of the corporation would be $150,000,000. This assumes, for the sake of simplifying the illustration, that no bonds or preferred stocks are outstanding. If the commission accepted 8 per cent as fair return on the valuation, it must leave the price of the service the same, since the full $24,000,000 of gross revenue is naturally needed to pay operating expenses of $12,000,000, and the fair return of 8 per cent on the $150,000,000 investment. If the commission accepted the valuation of $150,000,000, but held that 6 per cent was a fair return, it could then reduce the price or rate on electric current to 87.5 per cent of the old rate, which would yield, if the volume of business remained the same, 87.5 per cent of $24,000,000, or $21,000,000 gross revenue, and $9,000,000 net income, or 6 per cent on

$150,000,000. But if the stock market capitalized $12,000,000 in income at $150,000,000, it would now capitalize $9,000,000 at the same rate, or at a total of $112,500,000. Logically the commission would now insist that 6 per cent of $112,500,000 is a fair return, and would again cut rates below the former rate, which would result in again reducing the stock market valuation, and so on; the valuation of the property and the income being scaled down like a variable approaching a limit of zero, but never reaching it. This reduces the matter to an absurdity. Likewise if the commission decided that 8 per cent was too low a return on the valuation, and increased the rates to yield a return, say of 10 per cent, the larger net earnings would be reflected in a greater stock market valuation, which would then by the commission be accepted as cause for another increase in rates. This assumes — what is unlikely — that the public would continue to buy electric current at the high prices in the same volume as before. Like the reduction of rates based on stock market valuation, this also leads to an absurdity. Earnings and valuation would approach infinity.

13. **Finding the cost of the investment a logical procedure in rate regulation.** Obviously, from what has been said, the public service commission, in fixing rates that will yield a fair return on the investment, must find some other method of determining the amount of investment. The method that has been adopted is that of finding the cost of the investment; that is to say, of calculating the money expenses of constructing plant and equipment. The logic on which this method is based is sound. In competitive industries the product tends to sell at a price that just covers cost of production including a fair return on the value of the investment in plant and equipment. Whenever the net income in such enterprises, the sum left over after operating expenses, is more than enough to pay a fair return on the cost of plant and equipment, there is a strong tendency for more plants to be erected and equipped. Output then tends to increase, the price of the product drops, and the net income tends to drop to the point where it represents just a fair return on the cost of plant and equipment. This is what is commonly meant by the statement that price tends to equal cost of production. The assumption in the case of public utility rate regulation is that the monopoly price is somewhat higher than is necessary to cover cost

of production, and that the public service commissions must be substituted for competition as the agent which is to bring the rates down to a level that does just cover cost. To leave them higher than this is to overcharge the public. But to put them lower than this may be worse, since it will discourage future investment of capital in those necessary enterprises, so that the service will become inadequate to meet the needs of the people. There will be no additional public utility plants erected nor will the old ones be adequately expanded in capacity. Investors will prefer to put their money into unregulated industries where they have at least a chance of a fair return.

14. Finding the cost of construction at the time of construction less difficult than finding it a generation later. To determine the cost of the investment in plant and equipment would be no more difficult than to calculate the operating costs or expenses, if we could begin at the beginning and keep track of the costs from the time the cornerstone was laid. We should at once install a good accounting system and keep accurate account of every dollar expended in building up the property. Furthermore, to protect the people from paying unnecessarily high rates we should see to it that every dollar was as far as possible wisely expended. We should see to it that no one received from the public utility corporation more than a fair price for the goods or services he sold to it, and we should prevent if possible the construction of more plants, or larger plants than were needed, or plants poorly located. In brief, we should strive to prevent the plants from being built at an unreasonable cost and we should try to permit only prudent investments. On the cost of investment thus made the people ought to be willing to pay a fair return.

Unfortunately, however, we did not start to regulate public utilities at the beginning, and we did not keep account of their actual cost of construction. It was only after enormous sums of money had been invested in public utilities that the nature of their monopolistic power became apparent. When finally public service commissions were appointed, they found before them the task of determining the cost of plants long in existence, which not only had been constructed without public supervision, but whose owners themselves in many cases had only a vague notion of what had been the original cost.

Who can say, a generation after the original plant was built, what was the cost of the original plant, and what have been the costs of the improvements and additions? The promoters of the enterprise and the original investors, perhaps, are dead, and the cost records, if any reliable ones ever existed, possibly lost. If some sort of cost accounts have been kept, without public supervision, who knows to what extent the costs shown represent only fair prices paid for goods and services? They may represent gross overpayments by directors of the company to favored sellers, with whom they conspired to defraud the investors. To get an adequate notion of the actual cost of these plants, the commissions must proceed to make a calculation of their own — they cannot rely in most cases on the old records of the corporations. In finding the costs of the railroads for the purpose of regulating railroad rates, the Interstate Commerce Commission has proceeded to make a "physical valuation" of all the railroads, under the Valuation Act of 1913; it has been busy with this task for more than ten years, and the end is not in sight. The public service commissions must do something of the same kind.

15. Estimating the original cost and the present cost of reconstruction. If the public service commissions undertake to calculate the cost of the plants themselves instead of relying on the cost records of the corporations, they may proceed by either of the following methods: (1) With the aid of engineers, economists, statisticians, and others, they may estimate the cost of construction on the basis of the costs of labor, materials, supplies, etc., at the time of construction. Since there are no adequate records of the costs of these things in all localities ten, twenty, thirty, or more years ago, this method is not satisfactory. (2) With the same aid they may proceed to estimate the cost of duplicating the existing plant at the present costs of labor, materials, supplies, etc., making due allowance for depreciation. This method is much more satisfactory than the first, but it presents some difficulties. If the level of prices is higher at the time of the valuation than at the time the plant was constructed, the valuation will be above the actual cost of the investment; if the price level is lower, the valuation will be below actual cost of construction, assuming that the cost calculations are approximately correct. Only in the highly improbable event that

the price level is the same will this valuation represent approximately the actual cost. In this matter the Interstate Commerce Commission compromised by estimating costs at the 1914 price level, prices then being higher than at the time most of the railroads were built, but much lower than during the decade since then. Another troublesome problem is that of putting a valuation on land owned by the corporations. This land may have cost very little when the enterprise was started, but may have become enormously valuable with the increase in population. To value it at the present high figure — let us say, what the corporation could get for it on the market — would be to value the corporation's property far above cost. But to value it only at what it cost originally would be to deprive the corporations of the "natural" increase in land values, which we let others freely enjoy. We have considered here just two difficulties of this second method of valuation — difficulties that would not be present if the valuation were made once for all on the basis of the original cost. But there are other troublesome problems connected with any sort of regulation of rates on the basis of the cost of production of the plant and the cost of operation. Some of these will be noted in the following sections.

16. How fixing rates on cost of production basis may rob the inventor. Suppose that we have decided to regulate the rates of public utilities on the basis of cost of production of the service, assuming that when we do so we place investors in public utility enterprises on about even terms with investors in competitive enterprises, in which prices tend in the long run to cover cost, although often rising above or falling below cost. Suppose, further, that in a certain year, let us say 1913, we make a valuation of their plants on the basis of cost of construction in that year, and fix the rates to yield 6 per cent on the investment. Then note some of the various factors that might upset our calculations.

Among the more important of these factors are a general rise or fall in prices, a general rise or fall in the rate of interest, rising land values, and possible industrial developments resulting in a decreased demand for the product of the regulated companies. Before taking up these points, let us note the immediate effect on the investors owning the public utility corporations at the time of the valuation. If, at this time, the public utility companies, because of their mo-

nopolistic position and the conditions of demand for their product, had been able to charge a rate so high that it more than covered cost of production, including a fair return on the cost of constructing their plants, then the first task of the commission would be to reduce the rate and thus reduce the net earnings. But the existing net earnings are already capitalized in the market value of the public utility shares, which may have been bought by the present holders at their present high value. If net earnings of a certain company with property valued by the commission at $10,000,000, and with 100,000 shares of stock, but no bonds, outstanding amounted, say to $1,000,000, or $10 a share, the stock might have a market value of, let us say, $150. Reducing the net earnings by reducing rates until they were only 6 per cent of $10,000,000, or $6 a share, would bring down the price of the stock in proportion, say to $90. If the corporation should have bonds outstanding amounting to $6,000,000, bearing interest at the fixed rate of 5 per cent, then $300,000 of the earnings under the old rate would go to the bondholders, leaving the stockholders $700,000, or $7 per share. Then if, as assumed, the net earnings were cut to $600,000, the common stock would be left with only $3 per share. If before it had been valued on the market at $105 a share, it would now fall in price to $45, or three-sevenths of its former price. Any recent purchaser of such shares who had bought them on the basis of earnings before regulation would thus find himself robbed of a considerable part of the value of his property.

17. **Effects of a general rise or fall in prices upon investment in regulated industries.** Now let us turn to the effect of a general rise in prices, such as took place from 1914 to 1920. Labor, raw materials, supplies, and everything the public utility companies buy, rise in price, and hence operating expenses greatly increase. Meanwhile the price or rate they charge remains the same — fixed by law. Their net earnings decline and even disappear. Conceivably they do not even earn operating expenses. Of course the public service commission ought promptly to increase the rates. But the commission may not be convinced that an increase is necessary. It will at any rate first make an investigation, taking considerable time. The public may object to a rate increase, and the commission may play politics and keep the rates down. In that

case obviously the investors do not get the fair return on their investment provided for by law.

Suppose that the commission acted promptly, and increased the rates so that the stockholders received the same income as before, would they then be getting a fair return on their investment? They would be getting a fair return on the value of their investment as it stood before the general rise in prices — they would get the same number of dollars per share. If prices had doubled, however, as they did from 1914 to 1920, their income would have only half as much purchasing power as before. Their real income in goods would have been cut in half. Furthermore, if prices in general had doubled, then the value of investments in land and buildings in general would tend to have doubled, except those kept down by price regulation, as are those of the public utilities. To be explicit, if Jones had bought $10,000 worth of public utility stocks in 1914, he would have practically worthless stocks in 1920 unless the commission had raised the rates. If they raised the rates sufficiently to maintain the former earnings on his stocks, he would still have $10,000 worth. But if he had bought a $10,000 house in 1914, he would have a house worth $20,000 in 1920. To put Jones on a level with owners of unregulated enterprises, the commission would have to grant an increase in rates that would double his income per share and thus double the value of his shares. It is altogether unlikely that any public service commission would do that.

After a general rise in prices, there is likely to be a general fall in prices. During that period the stockholders in government regulated industries tend to gain. Operating expenses decrease. The rates tend to be maintained for a time. Net earnings on the stock rise, and the market value of the stock goes up with the earnings. It is needless to consider this point in detail. The reasoning is similar to that above.

18. Effect of changes in the interest rate. Suppose that the general rate of interest rises. Such a rise is likely to take place during a period of rising prices, lagging just a little behind the rise in prices. To simplify the exposition, let us assume that it takes place with the price level remaining the same. Suppose that 6 per cent has been considered a fair rate of return on public utility investments, but now, because the general rate of interest has risen, 8 per

cent would be a fair return, and one which would put these investments on a level with non-regulated investments. It would now be necessary for the public service commission to increase the price or rate of the service sufficiently to increase the net return over and above operating costs by one third. If no increase in rates were granted, then holders of public utility stocks would want to sell them in order to buy other investments yielding a higher return. But no one would pay $100 a share, for instance, for stock paying $6 in dividends, when he could buy equally safe stock at the same price that paid $8. Public utility stocks would fall in price until at the market price they yielded the new investor 8 per cent. That would be when stocks that had been worth $100, because they yielded $6 income, sold for $75.

A general fall in the rate of interest would naturally bring results just the reverse of those outlined above. It follows, therefore, that a public service commission which desires to put stockholders in public utilities on a par with other stockholders must be constantly alert to note and to take into consideration changes in the price level and changes in the interest rate. It is almost inconceivable that any public service commission will in the near future have the power and the ability to regulate rates on this basis.

19. Public utilities and the unearned increment in land values. Suppose that the valuation of public utilities has been made in the year 1913, and the landholdings of the companies have been valued at the estimated selling value of the land in that year. As time goes on, land values tend to increase. Suppose that in the course of twenty-five or fifty years land values in a certain city have quadrupled, and the estimated selling value of the public utility land has also quadrupled. Shall it still be valued at the 1913 level, with rates fixed on that basis? That would be the most likely thing to happen. But if this were done, then we should be denying to the public utility corporations the right to benefit from increasing land values. We should in effect be taking from them the "unearned increment" in land values, while permitting all unregulated industries to enjoy all of it that might come in their way. Much can be said in favor of appropriating in the interest of the public the increase in land values in cities, and a very effective way of doing this in part is to regulate public utility rates. But investors in

such enterprises are likely to complain of unjust treatment if they are deprived of privileges enjoyed by other property owners.

20. Investors in public utility enterprises should be given the status of investors in bonds. The foregoing sections have not been intended to convey disapproval of government control of public utility rates, but only to point out some difficulties that are not always recognized. Regulation with all its difficulties seems preferable to unregulated private monopoly, and preferable at the present time to government ownership. It is the least of three evils, and its defects must not be exaggerated. Most of the criticism here has been based on the assumption that we desire to put stockholders of public utilities on a par with stockholders in other enterprises, which seems almost impossible. Suppose, however, that we undertake to place investors in public utility enterprises, whether they be bondholders, or preferred or common stockholders, on a level with bondholders in non-regulated industries. This is quite possible. A bondholder in any corporation when he buys his bond — his investment — enters into a written contract. He agrees to invest his money at a fixed rate of return for a period of several years, even fifty or one hundred years, or more in some cases. In making this contract he takes the hazards that may come from changing levels of prices or interest rates and he foregoes all hope of a return from increasing land values. He does this for the sake of being assured, with a greater or less degree of certainty, that he will receive a regular income in dollars and his principal when it becomes due, if he lives.

Now investors in public utilities regulated by the Government may be held to have made a similar contract. It is only necessary that the Government define its policy and stick to it, so that no investors will misunderstand the conditions. To put the public utility investor on a par with bondholders generally, he must not merely have his possible income limited to a specified rate, but he must be assured of that specified rate — his return should be practically guaranteed by the Government, within reasonable limits. The public service commission should permit the rates to be high enough to pay this return. If, however, a reasonable return could not be earned, even with rates as high as the traffic would bear, so high that even an unregulated monopoly could not put them higher

because the public would cease to buy, then the Government should not be asked to pay the deficit. In other words, public utilities should under no circumstances be subsidized out of the public treasury. On the other hand, the rates should be fixed high enough so that a surplus over and above a fair return might be built up in good years, out of which interest or dividends could be paid in poor years. Under such circumstances the risk of investors would be small. In most growing cities the public will be willing to pay rates at least high enough to pay a fair return on the investment made in public utilities, provided the plants have been constructed at reasonable cost. Only in the unusual case of a city declining in population, or in the unforeseen event of revolutionary changes in industrial conditions, would a fair return not be earned. But that degree of risk investors even in the bonds of sound non-regulated corporations must assume.

We conclude, then, that the States should continue to regulate the rates of public utilities, and that the rates should be fixed high enough to yield the investors a fair return on their investment — a return that in rate and certainty approximates that of bondholders in sound non-regulated corporations. If, as is ordinarily the case, there are bondholders, preferred stockholders, and common stockholders in these public utility corporations, their position should be somewhat analogous respectively to first mortgage, second mortgage, and third mortgage bondholders of other corporations. For example, 7 per cent having been accepted as a fair rate of return on the $3,000,000 valuation of a certain company, its rates should be fixed at a level that would yield a net return, under reasonably efficient management, of $210,000. If now there were outstanding $1,000,000 in 5 per cent bonds, $1,000,000 of 7 per cent preferred stock and $1,000,000 of common stock, there would remain for the common stockholders $90,000, or 9 per cent on their investment after interest on bonds and dividends on preferred stock were paid. This relatively high yield would compensate them for their risk and reward them for reasonably efficient management. Whether or not a particular company was being managed with reasonable efficiency could be determined by a statistical study comparing its results with the results of other concerns similarly situated. Rates should not be raised if net earnings fell below 7 per cent as a result of poor management.

21. Valuation and the courts. The problem of valuation of public utilities for rate-making purposes is complicated by provisions of the Constitution prohibiting the deprivation of persons of property without due process of law. Any method of valuation that public service commissions can apply in practice must meet the test of constitutionality, if the corporations or the investors concerned see fit to contest in court the valuation as being too low and therefore confiscatory. Unfortunately the courts have laid down no exact rules for valuation which a commission may follow. The courts hold that the investor in public utility or railroad corporations is not to be deprived of a fair return upon a fair value of the property. In the case of Smyth *v.* Ames, in 1898, the United States Supreme Court suggested that among the factors to be considered in ascertaining the fair value are original cost of construction, the amount expended in permanent improvement, the amount and market value of stocks and bonds outstanding, the cost of reproduction of the property, and the probable earning capacity. As rules for valuation these suggestions are too indefinite. The courts in later cases have not insisted that all these factors be considered in every case, and have tended to uphold valuations based on cost of reproduction. Up to the World War the prevailing method of calculating reproduction costs of public utility property was on the basis of average prices of labor and materials for a period of five years preceding the valuation.

Since the great rise in prices occasioned by the war, public service commissions have tended to base their valuation more on the principle of original cost, in order to avoid excessively high valuations based on costs of reproduction at temporary high prices. Valuations made on this basis may, however, be held by the courts to deprive persons of property without due process of law, since the courts have laid down the rule that valuation must be based on the present value of the property, and not on past values.[1]

22. Depreciation and valuation. The problem of depreciation causes some trouble in rate-making. As already indicated in this chapter, the public utility corporations should be permitted to charge a rate that will not only cover ordinary operating expenses and yield a fair return on the value of the investment, but that

[1] Kirshman, *Principles of Investment*, pp. 531–35.

will also cover depreciation. If, for example, a plant is worth $1,000,000, and may be expected to wear out in twenty years, it is depreciating at the rate of 5 per cent, or $50,000, a year. The corporation ought to be permitted to earn, let us say, 6 per cent on the investment, and in addition 5 per cent to cover depreciation. If, however, the $50,000 a year it is permitted to earn to cover depreciation, is not reinvested in the plant, but is used for other purposes, the actual value of the investment decreases annually $50,000. Obviously, then, the second year the corporation is entitled only to a fair return of 6 per cent on $950,000, and not on $1,000,000; and the third year it is entitled to 6 per cent on only $900,000, the fourth year on $850,000, and so on. Otherwise the corporation could gradually, by means of this depreciation allowance in its earnings, draw out practically its entire investment and employ the funds in some other business, while still being permitted to earn 6 per cent on the total investment originally made. This would be unjust to the customers, who would be compelled to pay unduly high rates for the diminishing quantity of service they received.

On the other hand, if a public service commission, in making its valuation, finds the original investment to have been $1,000,000, and assumes that since it is ten years old its depreciated value is only $500,000, and fixes a rate that will permit earnings of 6 per cent only on the depreciated value, injustice may be done to the corporation. Possibly the plant has been kept in a good state of repair out of past earnings and is in as serviceable condition as when new. In that case the investors are entitled to a fair return on their original investment of $1,000,000.

It is possible to do justice both to the investor and to the public. If the plant is large and consists of many parts, the sums set aside for depreciation can be expended from year to year for repairs or replacement of parts that are worn out. In other words, instead of a reserve for depreciation, we have charges for maintenance, which will be such as to keep the plant in a 100 per cent serviceable condition. If the plant is not of such a character that it can be kept in good condition by gradual replacement of parts, but consists largely, let us say, of one structure which must eventually be replaced by the expenditure of a lump sum in one year, then such sums should be set aside for depreciation each year as, if invested

each year in safe securities, such as United States bonds, would amount, at the time the plant must be replaced, to enough to cover the cost of replacement.

EXERCISES

1. It has been stated that monopoly in public utilities is not only inevitable but desirable. Give reasons.
2. Why is government regulation of public utility rates desirable?
3. Explain why public utility rates may be considered to be fair when they are just high enough to cover cost of production, including a fair return on the capital invested.
4. What facts ought a public service commission to know as a prerequisite to fixing fair rates? Why?
5. When public utility rates are fixed by state public service commissions, how are investors in public utility enterprises affected by a sharp rise in the general commodity price level and wages? by a fall in the current rate of interest? Why?
6. What are the various difficulties in the way of giving public utility stockholders a return approximately equal to that realized by stockholders in unregulated competitive enterprises? a return approximately equal to that of bondholders in unregulated competitive enterprises? What conclusion may be drawn from a consideration of these difficulties?

For "References" for this chapter see end of Chapter XVIII.

CHAPTER XVIII

RAILROADS AND GOVERNMENT CONTROL

1. Railroads and public utilities discussed separately. Railroads, strictly speaking, represent merely one of the several classes of public utilities, and tend, as do other public utilities, to become monopolies, either by means of exclusive public franchise or through the pressure of competition. For several reasons, however, it is better to discuss them separately, and writers usually do not class them with other public utilities, but put them in a class by themselves. First, let us note that in magnitude of investment the railroads of the United States exceed all other public utilities combined. Second, railroad economics presents certain important problems not met with in the other public utilities. Third, railroad rates and services have affected the business interests of the country more vitally than have other public utility rates and services. Fourth, because of the greater importance of the railroad problem to business, railroad regulation has received more attention and has been more completely developed than regulation of other public utilities. For these various reasons it has become customary to speak of the "railroads and public utilities" rather than to group the railroads along with the lesser public utilities. Let us now consider more closely these points and some other matters pertaining to railroad transportation.

2. Size and importance of the railroad industry. There are in the United States in round numbers more than 250,000 miles of railroad lines (not counting the miles of second, third, and fourth tracks, switches, sidings, and so on) which, together with the cars, engines, stations, and other railroad property, are valued at upward of $20,000,000,000, and represent not less than one fifteenth of the total wealth of the country. If these 250,000 miles of line were spread evenly over the country cutting it up into equal-sized squares, the sections bounded by the railroads would be less than forty miles square. In other words, no point in the country would be twenty miles from the nearest railroad. In reality in most sections

east of the Mississippi River the railway net is much closer than this, while in many parts of the western half of the country the railroad lines are few and far between. Furthermore, far more lines run east and west than north and south. Naturally it is in the most thickly populated and most highly developed parts of the country that the railroad net is thickest. Without this great net of railroads our other industries — agriculture, mining, manufacturing, merchandising — could not have developed to their present enormous size. More particularly, we could not have utilized to such a great extent as we have done the advantages of geographical division of labor and the advantages of large-scale production. Without cheap and efficient methods of transportation, production must be carried on primarily for local markets, with the use of local natural resources. A characteristic of our agricultural development is that our farmers sell their wheat, cotton, and other products in markets thousands of miles away, and buy producers' and consumers' goods in markets equally distant. Our large-scale manufacturing establishments as a rule either draw their raw materials from great distances or ship their products far and wide over the country, or both. Without our great railroad system, Kansas, for example, would not be noted as a wheat State, Iowa as a corn and hog State, West Virginia as a coal State, Georgia as a cotton State, or New England as a great manufacturing center. Industry in the various sections would be more diversified, on a smaller scale, and less effective. The total quantity of goods available for our people would be much smaller.

Our geographical division of labor, our large-scale production, our interchange of commodities in enormous quantities between points hundreds, and even thousands, of miles apart are reflected in the ton-mileage statistics of our railroads. A ton-mile is a unit of railroad transportation and represents one ton carried one mile. In recent years this ton-mileage has been running above 400,000,000,000. This means that on the average the railroads have hauled each year, for every man, woman, and child in the country, freight equivalent to 4000 tons hauled one mile, or, let us say, 40 tons hauled 100 miles. This prodigious quantity of hauling may be better appreciated, perhaps, if one is reminded that all the able-bodied men in the country provided with a wagon and team apiece

could not haul that much on dirt roads in a year. And it might be added, in view of recent developments, that motor trucks on paved roads do not as yet represent an adequate substitute for railroads in long-distance transportation. While our industries have thus been tremendously benefited in the aggregate by the railroads, they have also in a remarkable degree become dependent upon the railroads for their continued prosperity, and literally millions of business men might be ruined overnight by an unfavorable change in railroad rates. Not merely may individual business men be ruined, but the industries of one section may be made to stagnate while those in other sections flourish, and population centers may be shifted from one part of the country to another.

3. Peculiar characteristics of the railroad industry and their results. It is not primarily the size or importance of the railroad industry, however, that makes it desirable to devote a chapter in a book like this to railroads, but the peculiar characteristics of the industry which make either government control or government ownership inevitable. In this country we have chosen government control, or regulation. In many other countries they have chosen government ownership. If government regulation during the next few years fails to give satisfactory results, then it would seem that government ownership of the railroad industry in the United States is inevitable, to be followed sooner or later probably by government ownership of its allied industries — the public utilities and the other industries in which monopolistic tendencies appear. Let us note, now, the peculiar characteristics of the railroad industry, and the results that flow from these peculiarities, which make government interference necessary in the interest of the people, and, as some railroad men now admit, in the interest of the owners of the railroads themselves. These peculiarities include monopoly in respect to local traffic and peculiar conditions of competition where competition exists. The evil results that flow from these conditions include rates unreasonably high in some cases and unreasonably low in others, rates which discriminate against some persons, cities, or commodities in favor of others, and ruinous competition which drives the competitors either into bankruptcy or into agreements or combinations in restraint of competition.

4. Decreasing cost, indirect costs, and joint cost. When compe-

tition exists among railroads, it tends to become exceptionally severe unless restrained by agreements among the roads or by the Government. This is true because railroads operate under conditions of decreasing cost, subject to exceptionally heavy indirect or constant costs, and subject also to the law of joint cost. To make matters worse in this connection, their plants are highly specialized and the competitors are usually few in number. Concerning all these things something has already been said in other chapters in relation to other industries, but it seems desirable to note once more the meaning of some of these terms. In this book we have implied by conditions of decreasing cost conditions such that a large plant, other things being equal, can produce more cheaply, or at lower cost per unit, than a small plant, owing to the economies of large-scale production, such as may be realized in large manufacturing plants. For detailed consideration of these economies the reader is referred to Chapter XIII. We have distinguished carefully between the lower costs per unit that result from the economies of large-scale production and the lower costs per unit that result merely from fuller utilization of existing plant capacity. Reduction in costs from the latter cause are so marked that a small plant run at capacity may have lower costs per unit than a much larger plant turning out goods on a larger scale, but run at less than capacity. A plant of any size can produce more cheaply per unit if run at capacity than if run at less than capacity, because of the presence of indirect or constant costs, the sum total of which remains the same regardless of the volume of output. Indirect or constant costs are found in all industries, and their importance has already been noted in Chapters VII and XI, in connection with the price of producers' goods and cost of production in agriculture, and again in Chapter XIV, in relation to competition in manufacturing. They are of exceptional importance in railroad transportation, because they comprise roughly two thirds of the total expenses.

5. Classification of railroad expenses. The subject of indirect or constant costs in railroad transportation is of such great importance that it needs to be considered in some detail. Total expenses of railroads fall into two great classes, fixed charges and operating expenses. Operating expenses may be subdivided into a number of classes, the most important of which for our purpose here are ex-

penses of maintaining in good condition the right of way, the track, and the stations and other structures along the road; expenses of maintaining the cars and engines or the equipment; expenses of actually moving the trains or conducting transportation; expenses of getting traffic, such as advertising; and general expenses, including such things as salaries of officials, office expenses, and the like. Fixed charges include interest due on bonds and taxes. They are called fixed because they remain the same whether or not the railroad does any business, whereas the operating expenses tend to increase or decrease with the volume of traffic. However, it is a commonplace of railroad economics that operating expenses do not increase as rapidly as the volume of business nor decline as rapidly. It is easy to show why this is so. Doubling the number of trains run over a track does not double the expense of replacing railroad ties, since these rot rather than wear out. The number that will be replaced from year to year is little affected by the amount of traffic. Weeds along the right of way grow just as fast and must be cut just as often when the traffic is light as when it is heavy. Stations rot down, or become out of date, rather than wear out from heavy traffic. So with other items in the long list of maintenance of way and structure expenses. Nor must twice as many cars and engines be repaired or replaced each year if the traffic doubles, unless we assume that before the increase in business each car was in use all the time fully loaded, and each engine was hauling all the time trains as long as it could haul. Ordinarily, however, increased business may be handled by fuller use of the existing cars and engines. Of course equipment used all the time at full capacity will wear out sooner than if not so used, but equipment not worn out is likely to rot or rust or to grow out of date. So expenses of maintaining equipment do not increase in proportion to increase in traffic. Neither do the expenses of actually moving the trains increase in proportion to the increase in business. When traffic is light, cars may be hauled back and forth, half empty one way and quite empty the other. Engines may haul short trains instead of long ones. When business increases, it may not require more engineers and firemen and other employees — merely fuller loading of cars and longer trains. So labor costs of moving trains do not increase as rapidly as traffic. Neither does the cost of fuel, since an engine

drawing ten cars will consume almost as much coal as one drawing fifteen or twenty. It is evident, too, that traffic expenses and general expenses do not tend to increase as rapidly as the volume of business.

Writers on railroad transportation agree that, roughly speaking, operating expenses increase only about half as rapidly as the amount of traffic increases. That is to say, if the quantity of freight hauled increases by 10 per cent, the operating expenses tend to increase only about 5 per cent. Another way of putting this is to say that half the operating expenses are constant — that is, do not vary with volume of traffic — and the other half are variable — that is, do vary with the volume of traffic. The student should guard against confusing the two terms, "fixed charges" and "constant expenses," which seem to mean about the same thing. In railroad terminology they do not mean the same. Fixed charges mean primarily only interest on bonds and taxes. Constant expenses include these, and in addition that half of the operating expenses which does not vary with the amount of business. This can be made clear by means of the following classification in which the assumption is made that fixed charges represent 30 per cent of the total expenses, and operating expenses, 70 per cent:

TABLE XXII. RAILROAD EXPENSES

EXPENSES	PER CENT OF TOTAL EXPENSES		TOTAL
	CONSTANT	VARIABLE	
Fixed charges	30	0	30
Operating expenses	35	35	70
Total	65	35	100

The foregoing classification of expenses is in one respect incomplete, and does not in fact cover the total cost of railroad transportation, because it includes no return on the investment of the owners — the railroad stockholders. A railroad whose total income was just sufficient to pay fixed charges and operating expenses

would be a money-losing proposition to its owners. The owners would be worse off than if they had lent their money to others at a low rate of interest, and, strictly speaking, they would be suffering losses to the extent of the amount of interest they might so have obtained. Under similar conditions they would not invest any more money in railroads, nor would new investors be found to finance such a luckless enterprise. To this point we must recur later. For our present purpose it suffices to point out that to the constant expenses as shown in the table must be added a sum that represents a fair return — a current rate of interest — on the investment of the stockholders, in order to arrive at the grand total of constant or indirect costs. This return to the stockholders, while it must be forthcoming sooner or later unless they are to suffer loss instead of making profit, differs from the expenses included in the table in this respect: it does not have to be paid out of the railroad treasury each year as must be paid the fixed charges and operating expenses if the railroad is to operate. Its exclusion from the table of expenses is therefore, in one sense, quite logical.

6. Constant, or indirect, costs and competition. Note how the heavy constant costs shown in our table may affect railroad competition. Suppose that a railroad has been financed by the sale of $300,000,000 of bonds and $200,000,000 of common stock, there being just 2,000,000 shares of stock outstanding. Suppose that the condensed income account of a given year is as follows:

Gross revenue		$106,000,000
Expenses —		
Fixed charges (interest on bonds, taxes, etc.)	$30,000,000	
Operating expenses	70,000,000	
Total expenses	$100,000,000	
Available for dividends on stock		$6,000,000

Suppose, now, that traffic increased 10 per cent, and that the same rates prevailed as before. The 10 per cent increase in traffic means a 10 per cent increase in revenue, an increase of $10,600,000. Fixed charges would remain the same. Operating expenses, being half constant and half variable, would increase only 5 per cent, as against the 10 per cent increase in traffic. The total increase in

expenses would, therefore, be only 5 per cent of $70,000,000, or $3,500,000. The new income account would be as follows:

Gross revenue		$116,600,000
Expenses —		
Fixed charges	$30,000,000	
Operating expenses	73,500,000	
Total expenses	$103,500,000	
Available for dividends on stock		$13,100,000

Note that the 10 per cent increase in traffic more than doubled the amount available for the stockholders, and that the "earnings" per share increased from $3 a share to more than $6. If the market for railroad shares were such as to capitalize the earnings per share at 8 per cent, the stock, which with earnings of $3 per share would have been valued at $37.50, with earnings of $6 would have been valued at $75. Since the managers of a railroad represent the stockholders, and are generally themselves stockholders, it is obvious that they would be most eager to obtain the additional traffic. It would pay them to offer greatly reduced rates to get the additional traffic, although according to our first income account the old rates little more than covered operating expenses and fixed charges. If the managers could manage to keep the traffic they already had at the old rates, it would pay to get additional traffic at anything above 35 per cent of the average rates in force. For example, a 10 per cent increase in traffic at the old rates would have yielded $10,600,000, and at 40 per cent of the old rates, $4,240,000, and would have increased operating expenses only $3,500,000, leaving a net gain of $740,000 for the stockholders on this traffic at 40 per cent of the old rate.

It is obvious that any railroad competing with another railroad for traffic would be tempted to offer special rates to gain traffic at the expense of the other road. It is obvious, also, that the other road would soon retaliate and that the two might then engage in a rate war. The final result would be that, except for some new traffic encouraged by the low rates, the two roads together would have no more traffic than before and would be getting lower rates. But before noting the possible extent of this competition, let us turn to some other aspects of railroad economics.

7. Joint cost illustrated. Railroads operate under conditions of joint cost. That is to say, they produce a variety of services which in the aggregate cost them a certain sum — the sum total of fixed charges and operating expenses, but what any particular unit of these services costs to produce, or even one class as a whole, it is impossible to determine. Their position is similar to but more complicated than that of the farmer who has butchered a lamb after shearing it. Roughly he may calculate the cost of growing the lamb at let us say $10. But how much did it cost to produce the 10 pounds of wool or the 90 pounds of meat? They were produced at joint cost. Part of the cost of each may be calculated — the extra cost involved in shearing the wool or of dressing the meat. Assuming that the farmer has grown the lamb for its meat, and has sold the meat at a price which covers the cost of growing and butchering the lamb, anything that he gets for the wool, over and above the cost of shearing and getting it on the market, is clear gain. Assuming that he has grown the lamb for its wool, and has sold the wool at a price that covers the cost of growing the lamb and shearing it, anything that he gets for the meat over and above the cost of saving it for the market is also clear gain.

So railroads may calculate how much in the aggregate it costs them to handle all their business, but how much it costs to haul the freight, and how much to haul the passengers, they do not know. Both freight and passenger trains use the same track and certain other railroad equipment. As for calculating how much it costs to move a certain car of freight, which is one of many in a train which might have been moved at no less expense if this car of freight had not existed, or calculating the total cost of one of several packages of freight carried in a mixed carload — that is clearly impossible. The best that railroad managers can do is to calculate the extra cost of hauling extra trains, extra cars, or extra packages — a very small fraction of the total cost. The total cost of the extra package is the extra cost of loading and unloading it, plus its fair share of cost of moving the car, paying for the car, keeping the track in repair, building the track, general expenses, etc. No railway manager makes such calculations.

8. Why extra traffic pays at ridiculously low rates. So long as a railroad has some unused capacity, additional traffic may cost it

practically nothing. An extra carload of lumber, for instance, may mean merely switching an idle car into place with the labor of men already being paid, and hauling this car when loaded along with a train that would run anyway over a track imperceptibly affected by the extra car. A rate ridiculously low would still leave the railroad some net gain. It would be better to haul that extra car for $5 than not to haul it at all. Likewise, if it were a question of losing a carload of traffic, it would be better to try to retain it at $5 than not to keep it. Now it is obvious that any carload or any package may be considered as that much extra traffic which it would pay the road to add or to retain at any rate high enough to more than cover the extra cost of adding it or retaining it. If a certain railroad should be compelled to charge on the average $50 for moving a car 500 miles, and other rates in proportion, in order to pay fixed charges and operating expenses, it could nevertheless afford to carry an additional car for, let us say, $5 rather than not get that additional business, or it could afford to reduce the rate charged on any car it was handling to $5 rather than lose it. Quite obviously, however, it could not haul all its traffic at that low rate, nor could it offer such a very low rate for so much additional traffic that it would have to provide more equipment and labor to handle it. The fact that additional traffic even at very low rates may increase net earnings, and that the loss of part of its traffic will cut down earnings far more than it will cut down costs, has far-reaching consequences on railroad competition.

9. Difference between extra business of railroads and of manufacturers. Something akin to joint cost exists in any business enterprise, as in the manufacture of automobiles, even if only one grade of car and nothing else is produced in the factory. All the cars are in a sense produced at joint cost. Once the producer has his plant built and equipped and his organization developed, and is turning out thousands of cars a month, it will cost him little extra to build an extra car. The extra costs will consist almost wholly of the material used, and the producer could sell this extra car for any price over and above this cost and make a profit on it, provided only that he could sell the rest of his cars at the old price. But the manufacturer turning out a single product cannot successfully maintain two prices — one price on his regular output and another and lower price

offered to certain persons to induce them to take some extra cars. To cut the price on part of the output of like commodities, the manufacturer must cut the price on all. The reason for this has already been given in an earlier chapter. The closest approach an automobile manufacturer can make to price discrimination is to manufacture two grades of cars — one at a high price and one at a low price, offering perhaps somewhat better value, price considered, in the cheaper car.

10. **Rate discrimination.** But price discrimination, which is difficult or impossible for the manufacturer and most other business men, is not difficult in railroad transportation and is widely practiced. This possibility of price discrimination, rather than merely indirect costs and joint cost, is what distinguishes the railroad sharply from manufacturing enterprises. Whereas the manufacturer must generally make one price for his total output of like articles, the railroad charges widely varying rates or prices for practically the same kind of service, depending upon circumstances. The principle of the railroad managers is quite simple. They usually charge all they can get. If they cannot get certain business at a high rate, they will try for it at a lower rate — at any rate that more than covers the extra cost of that additional traffic. What they can get depends upon circumstances — primarily upon these four:

(1) The value of the service to the shipper.

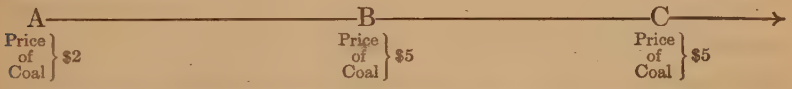
(2) The presence or absence of railroad competition.

(3) The presence or absence of water competition.

(4) The presence or absence of government regulation.

11. **What the traffic will bear: local discrimination.** When a railroad has no competition and is not regulated by Government, it is in a position to charge a rate that just about equals the difference between the price of a commodity at the point of origin and at the point of destination. This is commonly expressed as representing "what the traffic will bear," or the full value of the service to the shipper. Such differences in price exist because some commodities can be produced more cheaply in some parts of the country than in others, or because some commodities cannot be produced at all in certain sections, and being much desired will sell for a high price if shipped in — a price much higher than they will bring at the point of production. Wheat, for instance, can be produced at a lower cost

in Kansas than in New England. Iron can be produced more cheaply in Pennsylvania than in Kansas. Oranges cannot be grown in Wisconsin, but will bring a good price there if shipped in from Florida or California. Railroads could not exist except for such differences in prices unless they lived on their passenger traffic. Let us note how rates tend to be fixed under monopolistic conditions. A certain railroad runs from a coal-producing center, which we may call A, through a city 100 miles distant, which we may call B, and another city 200 miles distant, which we may call C. Neither of the cities B and C has coal mines near it; but wood is cheap in both of them, and will be burned instead of coal unless coal can be had for not more than $5 a ton. At the mines at A coal sells for $2 a ton. The situation is graphically depicted in the following simple diagram:



An enterprising merchant discovers this price difference — a difference of $3 between the price at the mining town and the price that buyers in B and C would pay for coal rather than continue burning wood — and inquires concerning the rates the railroad would charge for hauling the coal. The railroad men find that he is willing to engage in the business of shipping coal if he can clear $1 a ton above the cost of the coal and the railroad rates. Therefore, they fix the rate at $2 a ton, which is all the traffic will bear. This case, which is not fanciful, illustrates not only the principle of charging what the traffic will bear, but also one of the results of this practice — local discrimination in rates. The town B, which indirectly pays the freight in its price of coal, pays just as much for a haul of 100 miles as C pays for a haul of 200 miles. The one pays two cents per ton-mile, and the other only one cent.

12. **Commodity discrimination.** Charging what the traffic will bear leads also to rate discrimination among commodities, the rate commonly being fixed higher on high-priced commodities than on low-priced commodities, although the actual cost to the railroad of moving the two classes of goods may be the same. To illustrate this point: If our railroad had tried to charge more than $2 a ton for the coal, the merchant would have asked more than $5 a ton for it

at towns B and C. But rather than pay more the consumers would have burned wood. In contrast note the case of raw silk selling for $5, or more, per pound, or $10,000 per ton. A freight rate of $2 a ton on silk would be only .02 of 1 per cent of its value, as against 40 per cent of the value of the coal. It is obvious that if the manufacturer were willing to pay $10,000 for a ton of silk, and another $10,000 or more for the labor and factory equipment to turn it into cloth, he would not hesitate to pay many times $2 a ton in freight rates rather than not get the silk. How much he would pay the railroad might not know, but the management would try him out with a rate much higher than the rate on coal, say, $20 a ton. At all events, the charge would be made on the basis of what the traffic would bear — all that the railroad managers thought they could get.

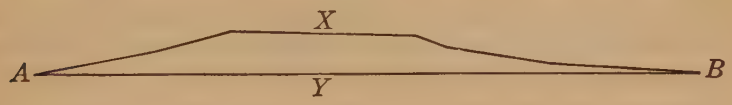
The foregoing paragraphs show why it is easy for a railroad to discriminate in rates. The citizens in *C* may know that the citizens in *B* are getting cheaper rates per ton-mile, but the only way they can take advantage of this knowledge is to move to *B*. The silk manufacturer knows that coal takes a lower rate than silk, but he cannot make silk hosiery or silk cloth out of coal. If, however, a manufacturer sold automobiles to some buyers at $500 and tried to get $1000 from others, the favored buyers would soon be reselling to those discriminated against, and no more cars could be sold for $1000.

13. How competition modifies what the traffic will bear. When two or more railroads operate between the same cities, competition is likely to develop, and this competition is likely to grow exceptionally severe for various reasons already mentioned and to some extent discussed in the preceding sections of this chapter. Under competitive conditions each road, of course, charges rates as high as it can get under these circumstances, just as it charges all it can get under monopoly. But what it can get may be a great deal less. In the first case it may be all that the shipper is willing to pay rather than not ship at all. In the second case it is only as much as the shipper may be compelled to pay if he ships over some other road. A case like this might arise — in fact cases like this did frequently arise in the early days of American railroad competition:

Railroad *X* and railroad *Y* both ran through cities *A* and *B*.

From *A* to *B* both railroads carried a heavy traffic of wheat, at a

rate of 30 cents a hundred pounds. Railroad *X* found that it had some idle box cars and could haul a few extra cars of wheat at a cost of less than 10 cents a hundred pounds. Therefore it reduced its rates to 29 cents, hoping to get the extra traffic and increase its profits. A 10 per cent increase in its wheat traffic would increase its net gain despite its lower rates on the old traffic. But this traffic it necessarily drew away in large part from railroad *Y*, which thereby



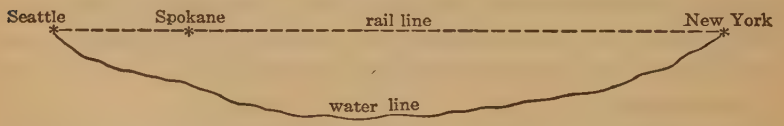
suffered a sharp loss in net earnings available for dividends. Railroad *Y* thereupon retaliated by reducing its own rates to 29 cents or lower, hoping thereby to regain the lost traffic. For the same reason that it cut rates at first, *X* would now cut rates again, and *Y* would meet the cut or more than meet it. This sort of warfare between the competing roads might continue until each was charging on all its grain traffic a rate that merely covered the "extra cost" of moving the extra cars it expected to gain or retain by its latest cut in rates. The war might also spread to the rates on other commodities, until all the rates were based on the principle of covering the "extra cost" of moving an extra car. The roads would then be in the position of the farmer who owned a lamb which cost $10 to raise, but who sold the wool for 10 cents because that was all it cost to shear it, and the meat for 50 cents because that was all it cost to dress it.

Naturally by the time the roads had reached this condition or before that time, they would have failed, being unable to pay their fixed charges and operating expenses, unless they had a great deal of "local" traffic — that is, traffic to or from non-competitive points on their lines — on which they maintained high rates. Even if the roads did not make the rates so low as to cover merely the extra cost of moving the extra car or cars, but marked down their rates only to the level indicated as profitable on the assumption that total expenses increase one third as rapidly as total traffic — as indicated in our table of constant and variable expenses — they would still be ruined, provided that the cut in rates was extended to the old

traffic as well as to the new, as it tends to be, once rate-cutting is in full swing. Even in this case they would not earn both fixed charges and operating expenses.

14. Effect on competition of few competitors and specialized plant. In manufacturing, when competition tends to become ruinous among producers of a certain commodity the situation may be relieved by the fact that among the considerable number of producers the least efficient may be ruined before the more efficient, and when they quit producing, the business of the rest may be somewhat improved. Furthermore, some of the more efficient producers, discouraged at the losses suffered in this business, may give their plants over to the production of other commodities. But in railroad transportation the competitors are comparatively few in number, sometimes only two, and none is likely to be ruined absolutely before the others also are practically ruined. Moreover, railroads cannot be converted to other uses. The plant is highly specialized and can be used only for transportation. Practically the only alternative is to sell it for junk.

15. Water competition. Even if railroads did not compete among themselves, they would still have to meet competition on much of their traffic. Their chief competitors in the past have been waterways. Whenever two points are connected by boat lines on rivers, lakes, or canals, or along the seacoast, railroads can charge



no higher rates than these competing boat lines on goods which can be as satisfactorily shipped by water as by rail. The railroad rates on lumber from Seattle to New York or other Atlantic ports, for instance, must meet the rates offered by steamers by way of the Panama Canal. Cheap bulky commodities may be shipped from Saint Louis to the points down the Mississippi by river steamers. The Great Lake steamers offer cheap rates between the various cities on the Great Lakes. Between such points, then, railroad rates must be low on all commodities that can move by water. As a result of water competition local discrimination in rates often de-

veloped against interior cities that had no water competition. Merchants in Spokane, Washington, for example, had to pay higher rates than merchants in Seattle on manufactured goods shipped from New York, because on the shipment from New York to Seattle the railroads had to compete with the boats running through the Panama Canal or around South America, whereas on the route to Spokane they had no such competition. The rates tended to be made on the following basis:

New York to Seattle, $1.00, to meet the water rate.
New York to Spokane, $1.25, what the traffic would bear.
Seattle to Spokane, $0.25, what the traffic would bear.

The Spokane merchant now had the choice between shipping direct to Spokane from New York for $1.25, or shipping by water from New York to Seattle, and back from Seattle by rail to Spokane, also for $1.25.

Water rates tend to be low because any one who has a ship can compete: the track is already laid. Furthermore, expenses for labor and fuel are less per ton-mile by ship than by rail. If railroads had to meet the water rates on all their traffic, they could not make expenses. But many kinds of commodities cannot well be shipped by water, and most parts of the country do not have effective water competition. In meeting water competition, then, the railroads have a clear case of making specially low rates in order to get the extra traffic, which pays if it more than covers the extra cost of handling it.

In recent years motor truck competition has made some inroads on railroad revenue, but mainly on short hauls, and this loss of short haul business, which is relatively expensive to handle, has been made up in part by the increase in long hauls resulting from business expansion for which the motor trucks have been partly responsible. In the future the railroads will have to compete with airships and aëroplanes.

16. Personal discrimination. In the foregoing sections some of the effects of railroad competition have been noted, including local discrimination, commodity discrimination, and ruinous rate wars. Some other important results must be noted. One of these is personal discrimination — that is, granting lower rates to some persons than to others in the same city on the same commodity. How and

why personal discrimination arose can be most readily explained by a simple example, by no means purely hypothetical:

Railroad *X* and railroad *Y* ran closely parallel through a wheat-growing section of Kansas. Along each road a number of grain dealers were buying wheat from the farmers and shipping it to Kansas City. The railroad rate on wheat on both roads to Kansas City was equal to nine cents a bushel. All the dealers received the same price for their grain, so that all could pay about the same price and make a reasonable profit. Each road tended to get about half the business. Now railroad *X* desired to get some of *Y*'s business, but did not care to cut rates openly and thus start a ruinous rate war. Therefore it secretly offered to the most energetic grain dealer on its line a rate of seven cents, or two cents less than all others paid. This enabled him to pay two cents more to the farmers and still make the same profit per bushel as before. He naturally got most of the wheat within easy hauling distance of his elevator. Up and down the railroad then he built or bought out other elevators and soon he was a wealthy man, while his competitors were ruined. At the same time railroad *X* gained much additional traffic at the expense of the other road. It sometimes happened that after a railroad had thus for its own advantage enriched one of its shippers by giving him low rates and a practical monopoly of the business, it would find the favored shipper demanding still lower rates and threatening to divert his traffic to the rival road if his demands were not met. Personal discrimination also arose in many other ways which cannot here be discussed.[1]

17. Pools, rate agreements, combinations. The danger of ruinous competition often led the competing railroads to form agreements or contracts of various kinds to maintain rates at a profitable level. Three competing roads from Omaha to Chicago, for instance, once agreed to divide their traffic between these two cities equally, and no longer compete for traffic by cutting rates, and they kept this agreement for twelve years. This sort of agreement is called a "pool." In other cases several roads merely agreed not to cut rates, without dividing the traffic equally, but such agreements were easily broken. They were found to constitute a violation of

[1] For an excellent account of actual cases of personal discrimination and methods used, see Ripley, Railroads: Rates and Regulation, ch. 6.

the Sherman Anti-Trust Act, too, as indicated in the chapter on Industrial Monopolies. Still another result of ruinous competition was the combination of competing lines into one larger system. The various evil results of unregulated competition on the one hand, and the monopolistic conditions that prevailed in relation to part of the traffic on the other hand, led to legislation providing for government regulation of railroad rates and service.

18. Through lines and competition. Competition among railroads is confined largely to so-called "through traffic" — that is, traffic consisting of relatively long hauls between large cities served by two or more railroads. Traffic to and from small cities served by only one railroad is monopolistic in nature. It follows from these facts that competition among railroads did not grow severe or become of great national importance until there were in existence long railroad lines under one management. The early railroads were short lines in the States along the Atlantic Ocean. Gradually, however, other lines were built in States farther west, and the short lines were joined by what is called "end to end combination," to form through lines. Thus the New York Central from Albany to Buffalo was formed in 1853. Later the New York Central was combined with the Hudson River Railroad at its eastern end and with the Lake Shore and Michigan Southern on its western end, to form a through line from New York City to Chicago. Similarly, during the 1870's, were formed the Baltimore and Ohio, the Pennsylvania, and the Erie Railroad systems, all reaching to Chicago in the West and the Atlantic seaboard in the East. It was the development of these four "trunk lines" and other similar through systems that led to disastrous rate wars and magnified the evils of discrimination in rates. It was natural, therefore, that government regulation should follow closely upon this growth of the large railroad systems.

19. The Interstate Commerce Commission. Government regulation of railroads, like government regulation of public utilities, has in this country been put largely into the hands of commissions. But in addition to the various state railroad commissions or public service commissions that regulate public utilities as well as railroads, we have a federal commission called the Interstate Commerce Commission, established in 1887 by an act of Congress called the

Interstate Commerce Act. State regulation began about 1870, and twenty-five States had already set up commissions to regulate railroads within their borders before the Interstate Commerce Commission was appointed. The various state commissions undertake to regulate rates, service, building of new tracks, issues of stocks and bonds, etc., with results often good, but sometimes ridiculous and harmful. State regulation, good or bad, has become subordinated to federal legislation in recent years. This was inevitable, since railroad transportation is largely interstate transportation, and individual States found themselves unable to control railroads running through several States. The Supreme Court has ruled that when orders of the Interstate Commerce Commission come into conflict with orders of some state railroad commission attempting to regulate the railroads within a state, the federal regulation takes precedence. The remainder of our brief discussion on this subject will be devoted to federal regulation.

20. Primary purpose and complexity of government regulation of railroads. At the outset let it be noted that the primary purpose of government regulation of railroads is the same as the purpose of regulating public utilities, namely, to insure the public reasonably satisfactory service at a reasonable rate. There is a close parallel between the nature of the problems and difficulties encountered in regulating railroads and those encountered in regulating public utilities, but the commissions that undertake to regulate railroads find some extremely difficult problems not encountered by the public service commissions in regulating the local public utilities. These extra difficulties of the railroad commissions arise mainly from two sources, namely, competition between railroads or between railroads and waterways and the multiplicity of railroad rates.

The average public utility enterprise is local in character and has a monopoly of the local business. It produces only a single product, or at most a few products. The public officials must fix only a single rate, or at most a comparatively small number of rates, such as the rate of gas per 1000 feet, or of electric current per kilowatt hour. If, to meet different needs, variations in the rate are provided for, as for current for lighting or power or heat, these variations are few in number. The large holding companies that control a great

number of local public utilities in various States are not themselves regulated. Their earnings are indirectly regulated through the rates of the concerns they control, from which they draw their income in the form of interest on bonds or dividends on stock. These companies are in fact nothing but stockholders of the local concerns.

But railroads compete for traffic with other railroads and with water carriers, and in fixing their rates the Interstate Commerce Commission must bear in mind the possible effects on this competitive business. Lowering the rates of an electric light and power plant is equivalent to reducing its earnings, but lowering the rates of a railroad company competing with other railroads may increase its net earnings by drawing to it the competitive traffic, and at the same time ruin some other railroad through loss of this same traffic. Furthermore, railroad rates are literally millions in number, since there must be a rate for each of thousands of commodities, and for each of these commodities a rate from each of thousands of stations to thousands of other stations. It is only by classifying commodities into groups taking the same rate, and by grouping stations together into zones taking the same rates, as far as this is practicable, that the task is reduced at all to manageable proportions. But at the best there remains to be dealt with an enormous number of different rates.

In the case of public utilities the rates may be held to be reasonable when they are high enough — and only high enough — to yield a fair return on the investment in the business. But in the case of railroads not only must the rates as a whole be reasonable in the sense of yielding a fair return on the investment, but they must be reasonable relatively to one another. There must be, in fact, no unnecessary discrimination. The foregoing discussion on the nature of railway competition and the objects of regulation indicates the nature of the laws enacted to control the railroads.

21. Main provisions of the Interstate Commerce Act. The main provisions of the Act to Regulate Commerce, of 1887, which applied to railroads or combined rail and water lines, were the following:

(1) Rates were to be reasonable and just.
(2) Personal discrimination in rates was forbidden.
(3) Undue preference of any kind was forbidden.

(4) Charging more for a short haul than for a long haul under substantially similar circumstances and conditions was forbidden.
(5) Pooling, or agreements to divide traffic or profits, was forbidden.

To carry out these and other provisions of the law a Commission of five men was established to be appointed by the President of the United States. This Commission was given the power to obtain from the railroads or from other persons called as witnesses, the necessary information required in its work. If the railroads refused to obey any order of the Commission, it could appeal to the courts to enforce its order.

22. The Commission declared practically powerless by the Supreme Court. Within a few years it became evident that under the law as it stood the Interstate Commerce Commission was powerless to regulate rates. Witnesses called to testify before the Commission refused to testify on the ground that their testimony would incriminate themselves and were upheld by the courts. This particular weakness of the Commission was soon remedied by the Compulsory Testimony Act of 1893. But when the Commission in 1891 ordered a reduction in freight rates from Cincinnati to Atlanta, on the ground that the existing rate was unreasonably high, the case was taken to the courts, and the United States Supreme Court decided: "It is one thing to inquire whether the rates which have been charged and collected are reasonable, — that is a judicial act; but an entirely different thing to prescribe rates which shall be charged in the future, — that is a legislative act." Then the Court added that Congress had not conferred rate-making power on the Commission.[1] Thus by interpretation of the Act by the Court, the Commission could do no more toward regulating rates than to express a pious opinion that they were unreasonable, an opinion which the railroads would view with impious indifference.

The provision against local discrimination likewise could not be enforced by the Commission. This provision, the reader should be reminded, was to the effect that the railroads were not to charge more for a short haul than for a long haul under substantially similar circumstances and conditions. Now, generally speaking, local discriminations of this sort, or violation of the long and short haul

[1] "The Maximum Freight Rate" case. Decided by the Supreme Court of the United States, May 24, 1897. 167 U.S. 479.

clause, as it is called, occurred only when there was competition between railroads or between railroads and waterways for the long haul, but not for the short haul, as indicated by this diagram:

The two railroads running through *A*, *B*, and *C*, and *A*, *D*, and *C*, respectively, competed on the long haul from *A* to *C*, but not on the short hauls from *A* to *B*, and from *A* to *D*. On these short hauls, then, they charged what the traffic would bear, but on the long hauls they cut rates in competing for the traffic, with the common result that the rate from *A* to *B*, or from *A* to *D*, was higher than the rate for the longer distance from *A* to *C*. When, therefore, the Supreme Court held that railway competition at the points *A* and *C* made circumstances and conditions dissimilar to those existing at *B* and *D*, the long and short haul clause became practically a dead letter.[1]

The provision against personal discrimination, too, was difficult to enforce, because it was difficult to prove that personal discrimination existed. Other defects of the law became obvious after a time, and to make government regulation effective and satisfactory, several subsequent laws were passed, which must be dismissed with a few words.

23. Later laws give commission full legal power over rates, but its power is limited by economic law. Personal discrimination persisted under the Act of 1887 largely because of the wording of the law, which made it difficult to prove that such discrimination was taking place. To remedy this matter, Congress in 1903 passed the Elkins Act, under which the Commission, with the support of the railroads themselves, succeeded in practically stamping out personal discrimination. The railroads favored this measure because powerful shippers had practically been compelling the competing railroads to grant them favorable rates, to the financial loss of the roads. If a powerful shipper demanded a low rate from one rail-

[1] "The Alabama Midland" case. Decided by the Supreme Court of the United States, November 8, 1897. 168 U.S. 144.

road under threat of giving all his business to a competing line, nothing but rate agreements among the roads or government interference would prevent the favor from being granted.

The Hepburn Act of 1906 specifically conferred upon the Commission power to prescribe reasonable maximum rates, a power the courts had held it did not possess under the Act of 1887.

The Mann-Elkins Act of 1910 increased the Commission's power over rates by granting it the power to suspend changes in rates proposed by the railroads until the new rates could be examined in respect to their reasonableness. This law also brought back to life the long and short haul clause by eliminating the words "under substantially similar circumstances and conditions." These three laws, through the provisions here named and other lesser provisions, made the Interstate Commerce Commission a rate-regulating body with such substantial powers that it practically controls, as much as any body of men could control, the railroad rates of the country. Absolute power over rates it does not have, any more than the railroad managers would have without government regulation. It cannot fix rates higher in any case than the traffic will bear. It dare not fix the rates as a whole on such a low level that they will not yield a fair return on the investment, not only because that would be against the law, but because it would ruin our country's business by ruining the railroads. It cannot altogether abolish local discrimination, because it must permit discrimination in favor of points enjoying water competition, since railroads must meet water rates to get the traffic. The Commission accepts the fact that in some cases it is better for the railroads to get this extra traffic at a low rate than not to get it at all, and that equally low rates on all the traffic would ruin the roads financially. The Commission can prevent in some cases, although not in all, local discrimination arising from railroad competition, because it can usually compel all the competing roads to raise their rates at the competitive points to a level that does not discriminate against the non-competitive points. The Commission also accepts the fact that high-grade commodities will bear a higher rate than low-grade commodities, and that it is better to grant a lower rate on low-grade traffic than not to get this traffic, if this rate does more than pay the extra costs of moving the extra traffic, and if granting rates as low on all commodities as

it must give these low-grade commodities would mean the ruin of the railroads. Thus it must discriminate between commodities.

24. Valuation and a reasonable return. The Act of 1887 gave the Commission no logical basis on which to fix a level of rates that would be reasonable. As in the case of public utilities, and for the same reasons discussed in the preceding chapter, rates may be held to be reasonable when they yield a fair return on the value of the investment. To fix reasonable rates on railroads, therefore, some method of valuation had to be devised. Such a method was provided for in the Valuation Act of 1913, under which the Commission has labored for more than ten years to determine the value of the investment. The method used, in brief, has been to find the cost of reconstructing the railroads, minus depreciation, on the basis of the general price level of labor and materials in 1914. The land of the railroads is valued on the basis of the selling value of similar and adjacent land, rather than on the basis of original cost. According to these principles the Commission found a tentative valuation a little below $20,000,000,000. To this valuation costs of subsequent additions and betterments are naturally to be added.

This valuation is subject to two main criticisms: First, by the railroads it is held to be too low, since it values their investment at the low price level of 1914, whereas non-regulated corporations enjoy a valuation based on present prices, something like 50 per cent higher. Second, opponents of railroads maintain among other things that the valuation is too high because it covers the cost of building railroad lines that should never have been built — foolish investments; because it values the land at much more than the railroads paid for it — much of it they got free as a government subsidy; and finally because part of these lines are held to have been built out of profits previously made out of unreasonably high rates. This work of valuation has been enormously expensive, having cost to date in the neighborhood of $100,000,000, and has taken so long that some of the statistics may be out of date before the results are applied.

25. The Transportation Act of 1920. The latest important act regulating railroads is the Esch-Cummins Act, or the Transportation Act of 1920. This law provided for the return of the railroads to their owners, after they had been operated by the Government as a

war emergency measure for the two years from March, 1918, to March, 1920. In addition to indicating more clearly according to what principles the Commission should apply the long and short haul clause, and providing for coöperation between the Interstate Commerce Commission and the state railroad commissions, and some other matters, this law undertook to provide a logical basis for determining the general level of rates which would yield a fair return on the investment.

This law stated that the Interstate Commerce Commission should initiate a general level of rates such that the roads as a whole might earn 6 per cent on the value of their investment, as determined under the Valuation Act of 1913. One half of 1 per cent of this 6 per cent, however, should be set aside for betterments and improvements. This return was in no way guaranteed to the roads, but was merely set as the ideal toward which the Commission should strive in fixing the rate level. The Commission fixes the rates at a level that it hopes will permit the railroad to earn the stated return. Then it is up to the railroads to get the business and earn the return if they can. This standard return was at the end of two years reduced to 5.75 per cent. If at the rates set the railroads fail on the average to earn the stated return, the Commission may grant a general increase in rates, but it is not assured that such a general increase in rates will increase the railroad revenues. It may be more than the traffic will bear, and the revenues may fall instead of rising. So far on the average the roads have failed to earn the standard return on their estimated valuation.

The greatest difficulty in applying this provision of the law is this: a level of rates that will permit a well-managed, well-built, and well-located road to earn more than 6 per cent may not permit its competitor, a less efficient road, to earn half that much. Yet under such circumstances it will do no good to raise the rates on the less efficient road, since this would merely divert its traffic to the more efficient competitor and still further deplete the earnings of the first. One solution of this difficulty is to permit the strong roads to absorb or consolidate with themselves the weak roads, so that a number of great railroad systems will be built up, each composed of some strong and some weak roads. These great systems would be so organized that they would compete with one another for traffic,

so that to some extent competitive conditions might be retained. A plan for such consolidations, with specific recommendations as to which roads might be combined into each of the systems proposed, was drawn up for the Commission by Professor W. Z. Ripley, an outstanding authority on railroad problems, but this plan has not won the approval of the railroads concerned. Unless the railroads voluntarily consolidate into systems on some plan acceptable to the Government, they may be compelled to accept the government plan of consolidation.

26. Recapture of earnings clause. Another feature of the Act of 1920 was the recapture of earnings clause. This clause provided that if at the general level of rates fixed to yield an average return for all roads of 6 per cent, the more efficient roads earned more than 6 per cent, they must surrender half of the excess to the Government. This makes it possible for the stronger roads to earn and retain for their stockholders more than the standard return, originally 6 per cent, but now 5.75 per cent. The railroads have contested the constitutionality of this recapture clause, but in the Dayton-Goose Creek case, the Supreme Court upheld the Government's right to claim these excess earnings.

The Act of 1920, in addition to encouraging consolidation of railroads into great systems, which at one time was held to be unlawful under the Sherman Anti-Trust Act, specifically permits pooling of traffic and profits, which was unlawful under the Act of 1887. Recently a plan has been proposed to pool, in a sense, the earnings of weak roads and strong roads, by permitting rate increases on both, but compelling the strong roads, such as the Atchison, to turn over the extra earnings to the weak roads, such as the Saint Paul. Naturally this meets the opposition of the strong roads and gains the support of the weak.

It should clearly be held in mind that the Transportation Act of 1920 by no means equalizes the return on all railroad stocks. In the first place, a weak road might not earn enough to pay fixed charges and operating expenses, and would therefore earn nothing for its stockholders. A road which just exactly earned the standard return of 5.75 per cent on its valuation might earn more than that on its common stock if it had large issues of bonds outstanding which drew interest at less than 5.75 per cent, or if the railroad property

had a valuation in excess of the par value of its stocks and bonds. For example, a railroad might be valued by the Commission at $1,000,000,000, and be entitled, therefore, to retain all of its earnings up to $57,500,000, and half of its earnings above that sum. Suppose it had outstanding only $500,000,000 in bonds bearing five per cent interest, and only $400,000,000 in common stock, and no other securities, and suppose it earned, available for interest and dividends $11,000,000 more than the $57,500,000 representing 5.75 per cent on its investment. It could retain half of this $11,000,000, or $5,500,000, which, added to its $57,500,000, would make $63,000,000. Subtracting from this sum the interest on the bonds, or $25,000,000, would leave $38,000,000, which would equal 9.5 per cent on its common stock.

It is not correct to say, therefore, that under the Transportation Act there is no incentive for good management. It cannot be denied that half of $11,000,000, as in the foregoing example, is better than nothing, nor that 9.5 per cent is better than 5.75 per cent.

27. Government control over new construction and issues of securities. One additional feature of railroad regulation must be noted. Since under a system of rates based on the value of the investment, the Government to some extent assumes an obligation to the investors — holding forth at least the promise of a fair return on the investment — it becomes desirable to maintain a close supervision over future investments in railroad property. Railroads must obtain government approval for new construction, and government permission for the issue of additional stocks and bonds with which to finance new projects. Government regulation of railroad train movement, safety devices, and labor controversies, and some other features of government regulation, for lack of space must be omitted from this discussion.[1] Enough has been said on the subject to show why the transportation industry differs from other industries in such a radical way as to justify strict government control, and to indicate the nature of the problems of government regulation and the methods applied by the Government to solve them. For more complete discussion of these problems the reader must be referred to the standard works on railroad transportation. It is too

[1] See Chapter XXII, Section 15, for a brief discussion of the Watson-Parker Bill providing for adjustment of railroad labor disputes.

early as yet to draw any final conclusions about the success or failure of government control. But those who oppose government control in general, or the Transportation Act of 1920 in particular, must be reminded that the alternative to government control of railroads is not a hands-off policy by the Government, but government ownership.

EXERCISES

1. Explain why a railroad that was just barely making expenses at the rate it was charging might make a profit from additional traffic gained by lower rates.
2. If a railroad with a gross revenue from operations of $100,000,000 earns $2,000,000 for its common stock, how much would it earn for its common stock if with the same rates in effect it gained 2 per cent more traffic? 10 per cent more traffic? 20 per cent more traffic? Assume that operating expenses increase only 50 per cent as much as traffic.

   If there were 1,000,000 shares of common stock outstanding, and if market price always represented ten times the earnings on the stock, what would be the market price of the stock under the above conditions of traffic and earnings?
3. Explain why and how local discrimination in railroad rates arises; personal discrimination; commodity discrimination. In each of these three cases explain whether or not discrimination is an evil.
4. What is the primary purpose of government regulation of railroad rates? What are the difficulties of government regulation? If government regulation fails, what will be the probable outcome? Why?
5. Has government regulation of railroad rates decreased or increased the incentive for good management of railroads? Why?

REFERENCES

I

Ely, R. T. *Outlines of Economics* (1923 edition), chapter 28.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 29 and 30.
Kirshman, J. E. *Principles of Investment*, chapters 16–19.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 73–83.
Seager, H. R. *Principles of Economics* (1923 edition), chapter 24.
Taussig, F. W. *Principles of Economics* (1921 edition), Vol. 2, chs. 62-64.

II

Bauer, J. B. *Effective Regulation of Public Utilities.*
Hayes, H. V. *Public Utilities, Their Cost New and Depreciation.*
Johnson, E. R., and Van Metre, T. W. *Principles of Railroad Transportation.*
Jones, E. *Principles of Railway Transportation.*
Lyndon, L. *Rate-Making for Public Utilities.*
Ripley, W. Z. *Railroads: Rates and Regulation.*

CHAPTER XIX

DEMAND SCHEDULES FOR LABOR

1. Simplicity of the wages problem before the factory system. Under primitive conditions, when we may suppose that each man worked to produce all the things he needed, each worker received the product of his labor. Everything that he completed with his own hands was his unless some stronger man took it from him by force. After simple division of labor developed and each workman tended to specialize at making some one thing, such as shoes, he still owned whatever he produced, but it was no longer all available for his own use. Some of his shoes, for example, the shoemaker had to trade for other consumers' goods he needed, and some of them he had to trade for tools and materials with which to make more shoes. Thus there arose the problem of determining how many of a hundred pairs of shoes produced by the shoemaker would be given to the man who produced the leather, and to the man who produced the tools, and how many pairs would be passed on further to the man who supplied the hides from which the leather was made, and to the man who supplied the materials from which the tools were made, and so on. It did not occur to the shoemaker, perhaps, that there was a problem. He simply traded as many shoes as were necessary for tools and leather, or, after money was introduced, bought for as little money as possible as much leather and as many tools as he required. Competitive conditions and his own bargaining power determined how large a part of his supply of shoes, or of the money he received for his shoes, he would have available to trade for consumers' goods or to save. And when it came to bargaining he no doubt considered himself as smart a man as the next one and amply able to protect himself from unfair dealing. So it was also with other craftsmen working under the handicraft and domestic systems that prevailed before the development of the factory system with its machine processes and complex division of labor.

2. The present wages system. Under our present economic organization most workers in the manufacturing industries no longer

work as their own masters. They find it more advantageous to work for wages in large business establishments in which they have little or no ownership interest and over which they exercise little or no control. In mining and transportation similar conditions prevail, and to a marked extent also in merchandising. Only in agriculture does the small master still flourish with few or no hired men to complicate his business, and even in agriculture the signs of the times point to the coming of large-scale production. In agriculture the greatest obstacles to the development of large-scale production have been the difficulty of supervising labor over large areas and the seasonal nature of the work. But, as stated in an earlier chapter, the use of motor trucks, farm tractors, and automobiles diminishes the difficulty of supervision, and there are possibilities of large-scale producers' conducting farms in various sections of the country producing various crops planted or harvested at varying months under various climatic conditions, and, with cheap means of transportation, keeping their labor force busy the year around by shifting it from State to State. At any rate, without taking into consideration these possibilities of the future, we may say that most people gainfully occupied in the United States at present in other than agricultural pursuits are working for wages. Furthermore, for most of these their wages constitute their only important source of income. Upon their wages depend their welfare, their health, their very life. These things being so, the principles that determine the rate of wages are surely worth serious consideration. Unfortunately, however, the two parties most directly concerned with wages — the employers and the employees — are often more disposed to quarrel about wages than to study the principles of wage determination, and for this reason wages and profit are both smaller than they need be. The time that is lost in quarreling does not produce wages or profits or a solution of the problem that will prevent future disputes.

3. **How much can a particular worker expect to get in wages for helping to make a product on which many workers coöperate?** It is our purpose in this chapter and the next to consider the general principles according to which wages are determined under competitive conditions. In a later chapter we will further examine the subject of wages and note to what extent these principles are modified when competitive conditions do not exist. We will take up first the

demand for labor, and then the supply. The demand for labor is twofold. There is on the one hand a demand for labor as a consumers' good, and on the other a demand for labor as a producers' good. When I employ a workman to satisfy my wants directly by his labor — as when I have my shoes shined, my hair cut, or my dinner served in style — I may consider such labor a consumers' good. But if I am a business man and employ workmen to help me produce something which I may sell at a profit I may consider such labor a producers' good. In the problem of wages we are primarily concerned with labor as a producers' good.

Our immediate problem is this: How much can a laborer expect to get for his labor from a business man? Is the laborer entitled to the "full product" of his labor? If by full product of his labor we mean all the goods his labor helps to produce, certainly not. All the hundreds of workmen in a large shoe factory help to produce all the shoes, but not each one can have all the shoes. Neither can all the workers in the factory together have all the shoes. The workmen who made the machinery, the building, the materials, and the supplies used in making the shoes must be paid for their labor. Each of these has just as good claim to all the product he helped to produce as the men in the factory. This appears so obvious that it seems almost foolish to waste words over it. Nevertheless, some writers imply, if they do not say so outright, that the workers in the shoe factory have been exploited if they get in money wages only a part of the total money value of their product. How much can the laborer expect to get in wages, if not the full money value of the product he helps to produce? We can answer this question by a careful consideration first of demand schedules for labor, and second of conditions affecting the supply of labor. We will not try to answer at this point the question of how much the workman ought to get, or how high a standard of living he has a right to enjoy, but the question of what determines how much the employers are able and willing to pay rather than do without their workmen, and how much they actually are compelled to pay under competitive conditions.

4. **Labor one form of producers' goods.** Labor, to the employer, is a variety of producers' goods, and the price he will pay for it is determined very largely by the same principles that determine the

prices of other producers' goods. What the employer buys is not labor in general, however, but some particular kind of labor. In other words, he hires not workmen in general, but particular classes of workmen to perform particular jobs, and we must approach the problem of wage determination from this point of view. The total demand for any particular class of workmen is made up of the individual demands of all business men who want to hire that particular class of workmen. For highly specialized workmen, like loom fixers in cotton mills, the demand is narrow, being confined to employers in the weaving division of the textile industry. For unskilled day laborers the demand is as broad as all business activity, since practically all business men employ at times some unskilled workmen. The various possible employers of any particular grade of workmen can and will pay various rates of wages rather than go without them, and most employers can and will pay more for a short time than in the long run, and often more for a few workers of a particular class than for more workers of the same class. Let us consider why this is so.

5. Demand schedules for labor. We need to remind the reader here of the discussion of demand schedules for producers' goods in Chapter VII. There the principle was laid down that the maximum amount a business man can afford to pay for all his producers' goods, and remain in business, is the total value of his product, and the most he can afford to pay for any particular class of producers' goods, as, for example, loom fixers' labor, is the difference between the total value of his product and all other costs. It is unnecessary here to repeat the reasoning on which these conclusions were based, since the reader may, if he desires, turn back to Chapter VII.

Since business men differ in ability and the amount of profits they are making, they differ also in the amount of wages they can pay for a given class of workers rather than go without them. For example, there may be three cotton mill owners each of whom requires the services of 1000 mill hands, such as weavers, spinners, spoolers, carders, reelers, loom fixers, etc. It may happen that at a given time one of these employers, whom we will call A, is making profits at the rate of $20,000 a month; another, whom we will call B, is making profits at the rate of $10,000 a month; and the third, C, is operating at a loss of $10,000 a month, and that each is paying his 1000 hands

$75,000 a month, an average wage of $75 a month. It is obvious that A could pay his workers in the aggregate $20,000 a month more than he is paying. He would then be paying them just exactly the difference between the value of his product and all other costs of production. He could pay his workers an average wage of $95 a month and stay in business unless conditions changed. B, however, could pay only $10,000 more than he is paying, and stay in business, or $85 a month on the average. C is already paying his workers more than he can afford to. If he is to stay in business, he must reduce other costs, obtain higher prices for his product, or reduce the wages of his workmen $10,000 a month in the aggregate. If things remain as they are he can really afford to pay only $65 a month on the average to his workmen. Since the workers are essential to the operation of the plants, we may assume that employers will pay all they can afford to pay rather than go without the workers and close down. A, for example, is making profits of $20,000 a month, according to our assumption, when he is paying average wages of $75 a month to his 1000 employees. If he found that he could not retain them for less than $80 a month, he would pay that sum, since even then his profits would be $15,000 a month, which is better than no profits, and there would be no profits with the mill not in operation. Just for the same reason he would pay $85, $90, or $94, the last-named wage level still leaving him profits of $1000 a month. But would he pay as much as $95, or more, and run without profits or at a loss? We have already assumed that C of our example is paying $75, and running at a loss of $10,000 a month. Let us consider why this may be so.

6. Business men may temporarily employ labor at a loss. For a short time any business man will continue running his business at a loss, if the loss is smaller than his loss would be if he quit operating. We have already explained the reason for this in our discussion of indirect costs in Chapters VII, XI, and XIV. Here, then, we need consider only the relation of indirect costs to wages. Temporarily a business man will pay to any class of workmen essential to his business not merely the difference between the value of his product and all other costs, but in many cases a considerably greater sum — the difference between the value of his product and all other *direct* costs. He may for a short time leave out of calculations *in-*

direct costs, since these do not affect the immediate problem. To illustrate, let us suppose our inefficient textile manufacturer, who is producing at a loss of $10,000, found that he could not retain his 1000 hands unless he increased their average wage from $75 to $80, which would increase his loss to $15,000 a month. If the total value of his product were $300,000 a month, and his total direct costs other than wages were $200,000, and his indirect costs were $35,000, then it would pay him to grant the increase in wages and accept the loss of $15,000 a month. If he closed down his plant, we assume that the indirect costs of $35,000 a month would continue, and, not being offset by any income from the business, they would represent a total loss. In fact, our unfortunate producer could afford to pay wages up to $100 a month, or $100,000 for all his hands, rather than close down. His total expenses would then be as follows:

Indirect costs	$ 35,000
Labor costs	100,000
Other direct costs	200,000
Total	$335,000

Then his losses of operating would equal his losses of not operating, or $35,000.

7. An employer's three resistance points to wage increases. It should be emphasized, however, that a producer whose direct costs alone equaled the value of his product and who had heavy indirect costs representing heavy losses, would in a short time be forced out of business. On the other hand, a producer might operate over a long period of time at a small loss, hoping for a turn for the better in business conditions which would save him from the disaster of closing down or selling his unprofitable business at a great sacrifice. In extreme cases a producer might even pay wages so high that his direct costs alone exceeded the value of his product, if the alternative were closing down his plant and disorganizing his working force and the market for his product, and if he saw prospects of better times not far ahead. It may be said that in a rough way every employer has three resistance points at which he will strive hard to prevent a further rise in wages. First, he will fight to prevent a wage increase that will wipe out his profits. Second, he will strive more desperately to prevent a rise that will bring his

direct costs alone up to the value of his product. Third, his absolute limit comes when a further rise would involve greater losses — even if paid for only a short time — than closing down his plant. But the foregoing represents the employer's situation considered purely from the financial point of view. Other considerations enter. He might become indignant at what he considered inordinate wage demands and close down his plant to teach the workers a lesson, even if by so doing he suffered a greater loss than he would suffer by paying the increases demanded. He might hope that after a temporary period of unemployment they would come back willing to work at lower wages.

8. What are additional nonessential employees worth? Up to this point we have considered only what determines the maximum wages a business man will be able and willing to pay for any indispensable class of workers rather than go without them. It remains to consider what determines the wages a business man will be able and willing to pay for additional workmen, useful but not indispensable. Employers are more often compelled to consider the question of how much they are willing and able to pay for certain additional men than how much they would be able and willing to pay a whole class of workers rather than lose their services.

With a plant of a given capacity an employer may not require a definite number of workmen of a given class. A cotton mill proprietor, for instance, requires the services of a number of weavers that corresponds only roughly with the number of looms in operation. If the best results in his factory come when there is one weaver for every loom, and he has fifty looms, then he will want fifty weavers. He might not care for any more weavers at any price. They would be useless to him. If, however, he had only twenty-five weavers, or one weaver for every two looms, and thought that one weaver for each loom would give better results, he might hire twenty-five more weavers. These twenty-five additional weavers would not be essential to the operation of the plant. Their presence or absence would mean, not the difference between running or closing down, but between turning out a little more or a little less cloth, or possibly a little better or a little worse cloth. What the employer could and would pay for their labor rather than go without it would depend upon the increase in the total money value of his product that could properly be attributed to their labor.

Again, an employer might desire to employ additional men in order to expand the size of his plant and his output. If all textile mills doubled the number of looms, then more weavers would be required than before. But if the expansion in output of cloth reduced the price of the product, and did not reduce in equal proportion the other costs of production, then the producers could not afford to pay as much for the second batch of weavers as for the first batch, although they might be quite essential to the operation of the additional looms. It should be noted, however, in connection with this point, that because of economies of large-scale production, an employer may be able to pay more for the larger number of workers he employs in the expanded plant than for the smaller number in the smaller plant, provided the price of his product does not fall too much when expansion of output takes place.

9. A demand schedule for every class of workers. It follows from the three main points considered in the foregoing sections — namely, that some business men can and will pay more for workers of a particular class than other business men rather than go without them; that some business men will temporarily pay wages high enough to involve them in loss if so doing prevents the larger loss suffered from closing down; and that some business men will pay more for a few men than for additional men of the same class — that there is a demand schedule for every class of workmen. A few would be demanded at very high wages because they were indispensable perhaps to employers making large profits and able and willing to pay astonishing wages to indispensable workmen rather than go without them. If they were indispensable, going without them would mean closing down the plant, and not only losing all possible profit, but even suffering a great loss. Some additional workers of the same class would be demanded at somewhat lower wages by less able employers to whom they were indispensable, but who stood to gain less by hiring them or to lose less by not hiring them. Still more would be demanded at still lower wages by groups of less and less able business men. Finally still others might be demanded at much lower wages because, while not indispensable to the operation of any man's business, their labor added something to the total value of output of the plant in which they worked or cut down other costs. Between the amount the most

able employer is able and willing to pay for a group of indispensable workmen and the amount the least able employer is able to pay for a group of the same class of workers, useful but not indispensable to him, there is a huge gap. In between these extremely high and extremely low wages that employers can and will pay rather than go without their workmen are many gradations of wages that would be paid by various employers for workmen more or less indispensable to the operation of their plants. So we may say that for any class of workmen there is a demand schedule representing the various numbers that would be demanded at various rates of wages. Such a demand schedule would be something like that shown in Table XXIII. In this table the number of workmen opposite each

TABLE XXIII. ASSUMED DEMAND SCHEDULE FOR LOCOMOTIVE ENGINEERS

NUMBER DEMANDED	WAGES PER DAY
1,000	$100
5,000	60
10,000	50
20,000	45
30,000	40
50,000	35
60,000	30
70,000	25
80,000	20
90,000	15
100,000	10
110,000	7
120,000	5

wage item represents the number of locomotive engineers that could find employment at that wage or more provided the railroads could not hire them for less. A large proportion of all locomotive engineers employed are indispensable employees. Without them traffic would cease. Others could be dispensed with without great loss to the railroads. In the table no attempt has been made to make the figures exactly fit the facts; it is intended merely to illustrate the principle that various numbers could and would be employed at various rates of wages.

10. How an increase in workers lowers the competitive wage level. Now it is obvious that conditions of demand being as they are for various grades of workers, the number of workmen of a given

grade available has a marked effect on the rate of wages for that grade. This is true whether we have competitive conditions or not. In this chapter we will assume competitive conditions to exist — competition on the part of the railroads for engineers and competition among engineers for jobs as such. We leave for later consideration the effect of organization and restraint of competition on both sides. If there were only 1000 engineers available, they could all find employment at the high rate of $100 or more a day. The most profitable railroads would hire them rather than not operate even if they paid each upwards of $30,000 a year. But conditions of demand are assumed to be such that if as many as 5000 engineers competed for the available jobs, some of them would have to accept employment with railroads able and willing to pay not more than $60 a day. If all were to get jobs, some would have to accept the wage of $60 offered by the less competent managements. If some engineers accepted work at this figure rather than go unemployed, then no railroads would have to pay more. If there were just 5000 engineers and no more, no engineer would need to take less than $60, or at any rate not much less, since the next most able group of employers would be coming into the market and drawing him away from the railroad that by our assumptions would pay $60 or more rather than lose him. In other words, $60 would be the wage that equalized demand and supply. If now the number of engineers increased to 10,000, demand and supply would no longer be equalized by $60 a day, but by $50. The larger the number of men available, conditions of demand remaining the same, the lower would be the wage that equalized the demand and supply. Once the number of engineers got so large that some of them could easily be dispensed with by the railroads, since their services would mean just a little more income from the slightly larger traffic handled, and their loss would not demoralize traffic, the extra engineers would have to accept employment at much lower wages; according to our table, as little as $5 a day if 120,000 men were seeking employment. By the principle of marginal vendibility, which applies here as in the case of any other good, whether producers' or consumers', the wages of the whole group, if all were practically equal in ability, would fall to $5 a day. If engineers working for the most efficient roads in the most responsible positions demanded $25 or $50 a day and threatened to

quit unless they got it, the managements would not need to worry. For there would be many good engineers working at $5 a day who would gladly accept a little increase in wages in a new position.

11. **Why some employers pay more than the competitive wage rate.** Although it is true that under competition the rate of wages for a whole class of workers tends to be determined by marginal vendibility, which itself is determined by conditions of demand on the one hand and the number of workmen applying for work on the other, some points of difference between labor and other kinds of producers' goods need to be pointed out. These points of difference tend to prevent the law of marginal vendibility from working itself out as thoroughly in the case of wages as in the case of prices for other goods.

As a general rule no business man will pay more for coal, or cotton, or a machine than he has to in order to get it. And what he has to pay is determined, as already stated elsewhere, by marginal vendibility. What he pays is, in effect, the price the least desirous business man who actually buys is able and willing to pay for his least desired unit rather than go without it. But business men not infrequently pay more for labor than they have to, or perhaps we should say rather that they pay workmen more than they have to. They pay something more than the competitive wage rate determined by marginal vendibility. They may do this from philanthropic motives, as when they pay more to a man with a family to support than is necessary to retain him, rather than see his family suffer. Such cases are probably more rare than they ought to be, but they exist. But business men may pay more than they have to — more than the so-called current rate of wages for workmen of various classes — for good sound business reasons. Unlike a machine, a worker may be affected by the price paid for his services. Some employers believe that if they voluntarily pay more than the competitive rate for workmen their workmen will in return do more and better work. Thus Henry Ford startled the business world by paying something like $5 a day for workmen whom he could have obtained for much less, perhaps $2 or $3. His action was sufficiently uncommon to attract much attention, but undoubtedly many other employers have similarly paid wages above the rate determined by the marginal vendibility of their workmen's labor.

12. Some workmen accept less than the full competitive wage rate. The general rule in the determination of prices is that all units of a supply are sold at the price the least competent or desirous buyer is able and willing to pay for the least desired unit rather than go without it. Shrewd business men need pay no more if they are buyers nor accept less if they are sellers, as already explained. But laborers often accept less for their labor than the least competent employer is able and willing to pay rather than go without their labor. They accept less, in other words, than what we may call the full competitive wage — the wage they might get if they refused to work for less. This is because laborers are not shrewd business men, and do not always understand just how much their labor is worth to their employers. Moreover, their labor is a perishable product — they must sell at once; every day spent in holding out for better wages is a day of labor lost. The buyers of their labor, too, are scattered, and do not come together in a keenly competitive market as do the buyers of many other goods. The laborer must, so to speak, peddle his labor far and wide, and in much peddling he loses time and spends money. He is then likely to hang on to any job he has, particularly if he is a man with a family, even if the wage is lower than even the most incompetent employer could afford to pay, and lower than many employers would be willing to pay him if he applied for a job. Employers with their superior bargaining power, about which more will be said later, often take advantage of the comparatively helpless unorganized laborer, and pay him, as stated, less than the full competitive wage.

EXERCISES

1. How can one calculate how much a business man is probably able and willing to pay temporarily for a certain class of indispensable labor rather than close down his plant? How much he is able to pay in the long run if he is to remain in business?
2. How can a business man calculate how much he can afford to pay an additional useful but not indispensable laborer rather than go without him?
3. According to the demand schedule for locomotive engineers on page 364, what would tend to be the wages of locomotive engineers if the supply of them were 10,000? 50,000? 100,000? Why would wages in each case tend to be neither more nor less?
4. What is meant by marginal vendibility of labor? What is the relation between marginal vendibility of labor and wages?

5. Why do some business men pay certain classes of laborers more than the current rate of wages for labor of that class, although rarely if ever paying more than the current market price for raw materials or machinery of a given kind?

For "References" for this chapter see end of Chapter XX.

CHAPTER XX

DIFFERENCES IN WAGES

1. Marginal vendibility of labor and wages. In the preceding chapter it was pointed out that labor employed by business men represents merely one kind of producers' goods, and that for every class of labor there is a demand schedule representing the various rates of wages that would be paid for various numbers of workmen in a given class. With any given condition of demand, therefore, the larger the number of laborers in a given group, the lower will be the competitive wage level in that group, the wages of all workmen in the group tending to be determined by the principle of marginal vendibility. However, some employers pay more than the wage determined by marginal vendibility, and some workmen at times take less, for reasons already given, so that the principle of marginal vendibility does not work itself out so rigorously in the case of wages as in the case of prices for other producers' goods.

2. Conditions under which there would be no differences in wages. Although the principle of marginal vendibility does not apply so rigorously to the price of labor as to the prices of other goods, nevertheless the general principle holds true that the greater the supply of workmen in a given class relatively to the demand, the lower will be the wages of that group. In this chapter we will undertake to point out the reasons why workers in some groups are more numerous relatively to demand than workers in other groups, and why, therefore, great differences in wages for various classes of laborers exist.

If all the various kinds of work and all the workers in a country were of such a nature that any worker could do any kind of work, and if all kinds of work were equally attractive, equally repulsive, then the supply of workers in all occupations would tend so to adjust itself to the demand that wages in all occupations would be the same. If, for example, the 100 railroad presidents in a certain country were being paid higher wages than the 100,000 garbage collectors and street sweepers, some of the latter would resign and apply for

jobs as railroad presidents. If they offered to work for less than the presidents on the jobs, and were equally efficient, the stockholders of the railroads would be foolish to continue paying more than they had to for presidents. The wages of railroad presidents would be forced down under competitive conditions to the level of garbage collectors and street sweepers. If the wages of garbage collectors should, on the contrary, rise above those of railroad presidents, then some of the latter would resign and take jobs as garbage collectors. And so with any other two occupations. Differences in wages might appear, but they would constantly be in the process of being wiped out by workmen shifting from one job to another whenever the opportunity of getting higher wages presented itself.

3. Differences in wages arise from differences in attractiveness and complexity of work and differences in natural ability, training, and experience of men. But in real life there are differences in the nature of the various kinds of work to be done and differences in the nature of men. Work differs in attractiveness and in complexity. Men differ in ability to perform work of various degrees of complexity. If we had only to deal with varying attractiveness or repulsiveness of occupations, and not with the varying capacity of men to perform work of various degrees of complexity, then differences in wages would arise which would tend to offset the differences in attractiveness or repulsiveness of the various occupations. For example, if in a certain occupation the work were easy, clean, and interesting, the hours short, holidays frequent, vacations with full pay long, the surroundings delightful, and the workers held in the highest esteem, many would be attracted to that occupation. On the other hand, if in another occupation the work were hard, dirty, and monotonous, the hours long, holidays infrequent, vacations short and without pay, the surroundings disgusting, and the workers held in the deepest contempt, few would be attracted to that occupation.

The relatively large number applying for the attractive jobs would depress wages there, and the relatively small number applying for the unattractive jobs would raise wages there. In other words, in the one case marginal vendibility would be low and in the other high. The difference in the wages in the two occupations

would measure the differences in their attractiveness. Each worker would then have the choice of changing from a poorly paid but otherwise attractive job to a well paid but otherwise unattractive job, or *vice versa*. If in between these extremes — the very attractive occupation and the very unattractive occupation — there were other occupations with some attractive and some unattractive features wages would tend to adjust themselves to measure the varying degrees of attractiveness in each of the occupations.

Under such circumstances who would be paid the better wages — the railroad president or the garbage collector? The former has to work long hours, perhaps, and under a severe nervous strain, but his work is clean, interesting, performed generally under pleasant surroundings, and held in high esteem. The work of the garbage collector involves no great nervous strain, and he may have short hours, but the work is dirty, uninteresting, and not held in high esteem. When the railroad president passes by, in his special car or his limousine, people crowd up close to catch a glimpse of the big man. But when the garbage man in his truck passes by, they hold their noses and give him as wide a berth as possible. On the whole, one would think the garbage man deserves the higher wage, since there are comparatively few who would prefer his job to that of the railroad president, and many who would prefer the railroad president's to his. Yet the railroad president may get a salary, or wage, a hundred times as great as that of the garbage collector, because in the determination of wages the complexity of the work and the capacity of men to perform it are more important than the varying attractiveness of occupations.

4. Occupations may be classified according to complexity of work. There is some work that almost anybody can do as well as anybody else, and there is some work that only a few can do at all. In between these extremes are various kinds of work that can be done by various proportions of all the people who would like to do it at the wages offered if they could. Occupations may be ranged in classes in such order that each successive class requires some qualification in the worker higher than the preceding class — some qualification that bars great numbers from consideration as successful candidates for a job or a position. Most men can qualify for positions which do not require great natural ability, special training, or experience. Few

men can qualify for positions requiring all three. The more limited one's natural ability, education, and useful experience are, the more limited is the number of occupations to which one has access, and the more crowded one is likely to find those to which one does have access.

5. **The unskilled labor class of occupation.** The lowest class of occupations embraces the kinds of work of the least complexity for which most men can qualify. It is the class of occupations open to the unskilled laborer. It has been facetiously remarked that the demand for unskilled laborers is a demand for men with strong backs and weak minds. The implication is that a man must have a strong back to do this kind of labor, and a weak mind, too, because only men with weak minds would be willing to do hard labor with little pay. Although this statement is not altogether true, there is more than a grain of truth in it. The economist's stock example of the unskilled laborer is the ditch-digger, who does not necessarily have either a strong back or a weak mind, but who is likely to have both. The occupations of the unskilled laborer differ from one another, and require varying degrees of physical strength and natural intelligence. Even the physically weak and the morons can do many kinds of unskilled labor, and it is likely that any one of 90 per cent of all males between the ages of fifteen and sixty could find and hold a job as an unskilled laborer except in times of business depression.

6. **The skilled and the semi-skilled labor groups.** Next above the unskilled labor class of occupations comes the semi-skilled labor class of occupations. To qualify for these occupations men must have natural intelligence above that required of the unskilled laborer, and some special mechanical ability and training. Just a little natural intelligence and just a little mechanical training may lift a worker out of the unskilled ditch-digging group into the semi-skilled group that can run a street car or operate machines in a factory or do various odd jobs requiring some mechanical ability. Men able to find and hold jobs as semi-skilled workers are much less numerous than those able to qualify simply as unskilled workers, but much more numerous than skilled mechanics who constitute the members of our third group of workers — the skilled labor group. In this group may be placed carpenters, bricklayers, plas-

terers, and other skilled workers in the building trades, as well as machinists, locomotive engineers, etc. Workmen in this group require a considerable amount of natural intelligence and mechanical ability, as well as considerable training and experience in their particular specialty. They do not ordinarily have to have book-learning beyond that acquired in the first eight grades of the public schools, and often do not need that much. Weaklings, wishy-washies, flighty, densely stupid, and irresponsible persons rarely become skilled workmen, but remain permanently in the unskilled or semi-skilled labor groups, unless they are sent to school and acquire under pressure enough book-learning to qualify them for the next group we shall consider — the clerical group, or the clerks.

7. The clerical group. In our fourth group of workers may be placed clerks, bookkeepers, teachers in grade schools, stenographers, small-scale business men, and other workers of the same general kind. To qualify for this group one must ordinarily have some degree of natural intelligence, and generally a public school, but not always a high school, education. This is stating merely the minimum requirements of the group. For many positions within the group higher qualifications are necessary. This group differs from the skilled labor group, not in needing greater natural ability, but in needing more booklearning. In fact, the work performed by many skilled mechanics requires more natural intelligence than that performed by many clerks. There are probably just as many men with the natural ability to become clerical workers as men with the natural ability to become skilled mechanics, perhaps more, and it is doubtless true that more women could be found to qualify as workers in this fourth group than as workers in the skilled labor group. In recent years, in fact, our fourth group has been more crowded than our third group.

8. The professional and big business group. The fifth and highest group of occupations comprises those occupations which, because of the complexity of the work performed, require far above the average degree of natural ability combined either with a high degree of book-learning or with some degree of education together with years of valuable experience. In this group may be placed high-grade business men and professional men, including lawyers, doctors, engineers, etc., and teachers in colleges and universities.

The group is small, first, because ability far above the average is scarce, and second, because long years of education or of practical experience are required.

9. Non-competing groups. The five groups of workers here considered have been called by some writers non-competing groups. The assumption is that the workers in any particular group do not compete for positions with workers in the other groups, and that the children of workers in any group are likely to remain in that group. Therefore, high wages for workers in one group can be maintained at the same time that low wages persist in another group. This is largely true, but not altogether true. In the first place, many workers in the lower grades are only temporarily unable to qualify for positions in the higher grades. Some unskilled workers become semi-skilled workers or clerks. Some semi-skilled workers qualify as full-fledged mechanics, or they go into business for themselves, possibly become successful, and emerge as members of our highest group. Or a clerk may go to college and become a professional man, etc. In a country such as the United States with opportunity wide open for natural ability, there is a vast movement of that kind always going on. Moreover, children often rise above the economic station of their parents, particularly in countries where hereditary castes are not a recognized social institution. Those members of the lower grades of occupations, however, who have not the ability to rise, cannot of course compete higher up. They must continue to work on their natural level. The garbage collector who does not have it in him ever to be more than a garbage collector cannot compete with railroad or college presidents for their jobs.

Now, although many workers in the lower grades are unable to rise and cannot compete higher up, there is nothing to keep a worker higher up from descending into the lower grades to compete with the workers there. Railroad presidents and college presidents could, if they found it to their advantage, compete with the garbage collectors for their jobs. There is here a possibility of competition of a one-sided sort. Wages in the occupations requiring great ability and training or experience may rise above the level of those requiring little natural ability, training, or experience, but not *vice versa*. The man at the bottom can generally not compete except at the bottom. The man higher up can compete all the way down.

10. Wages in various occupations equalize demand and supply of workers. In the foregoing discussion we have indicated that, as we move upward from the lower grades of labor to the higher grades requiring progressively higher qualifications in the workers, the number of persons able to compete successfully for positions becomes smaller and smaller. We might conclude, therefore, that according to the law of diminishing vendibility wages in the lower grades of occupations would be lower than in the higher grades. With some exceptions that conclusion would be correct, although the reasoning on which it is based would not be sound. We must be on our guard against assuming that the fewer the men who can qualify for jobs in a particular occupation, the higher wages will be in that occupation. That would be assuming that wages depend upon supply independently of demand. But demand must also be considered. It is the number of men available compared with various numbers demanded at various rates of pay that determines the level of wages in a given occupation. This principle can be illustrated by the imaginary demand schedules shown in Table XXIV.

TABLE XXIV. DEMAND SCHEDULE FOR COLLEGE PROFESSORS, BRICKLAYERS, AND BARBERS

NUMBER DEMANDED			WAGES PER DAY
Professors	Bricklayers	Barbers	
100	1,000	2,000	$100
500	5,000	10,000	50
1,000	10,000	20,000	40
10,000	100,000	200,000	20
20,000	200,000	400,000	10
30,000	300,000	600,000	5

With demand schedules for college professors, bricklayers, and barbers as shown in the table, the professors might receive considerably lower wages than bricklayers and barbers, although the number of professors were much smaller than the number of bricklayers and barbers. Suppose, for example, there were 20,000 professors, 100,000 bricklayers, and 200,000 barbers. Then the professors would get $10, and the bricklayers and barbers each $20, the price

that would equalize demand and supply in each of the three cases. Let us grant that the professors have greater natural ability and more education than the barbers, and that the barbers could not have become professors if they had tried, and have ten times as much competition in their occupation as the professors have in theirs — nevertheless the barbers get wages of $20 while the professors get only $10. That is because, in proportion to the number demanded at $20 a day, the professors are more numerous than the barbers. If they want higher wages they must make themselves relatively scarce.

11. Possibility of shifting from one occupation to another. Whenever the number of workers in any occupation becomes disproportionately large as compared with the demand for workers, the marginal vendibility of such workers sinks, and their wages fall until demand and supply are equalized. There will then be a natural tendency for such workers to shift into some other and better-paid occupation if they can. Such shifting is possible from one occupation to another of a very similar kind, so that a worker qualified for one is also qualified for the other. It is usually possible from one unskilled occupation to another, but not from the unskilled occupations as a group to the occupations in the groups higher up. It is only the exceptional worker in the unskilled group who can move upward. Throughout history the number of workers capable of doing only unskilled work has been disproportionately large as compared with the demand for such work at fair wages, and wages in the unskilled labor group of occupations have therefore always been relatively low. For the incompetent or shiftless there has in the past been no avenue of escape from these low wages.

Shifting from one occupation to another within the groups higher up is likely to be attended with difficulty, since the occupations within these groups are often highly specialized, and skill and training in one do not fit the worker for a job in another. A bricklayer cannot at once become a carpenter, although he might manage to do so after a few months of training. A lawyer or a professor might not be able to become a doctor at all, or, if at all, then only after years of training. If one of the professions becomes unduly crowded, and the earnings of the men in that profession become abnormally low as compared with the earnings of men in other profes-

sions or occupations, these low earnings may persist for years, because of the great difficulty in shifting. Lawyers tend to remain lawyers, doctors, doctors, and professors, professors. Relief comes after some years to members of an overcrowded profession through a smaller number of recruits' being attracted to the low-paid calling. Able men capable of succeeding in other fields avoid it.

In recent years clerks, bookkeepers, public school teachers, and other workers in our fourth class of occupations — the clerical group — became relatively more numerous in proportion to the demand for them at fair wages than bricklayers, carpenters, and other skilled workmen. There were several reasons for this. First, there is the natural desire men have for a clean job, and the way in which the public esteems the man with clean soft hands and a white collar above the horny-handed and soiled son of toil. In the second place, the spread of public education fitted a larger and larger proportion of the young men for these greatly desired white-collared positions. "Jobs" fell into disrepute. "Positions" became much sought after. In the third place, women who entered industry in great numbers turned largely to the clerical positions rather than to the jobs requiring manual labor. As a natural result the wages of clerks fell relatively far below the wages of skilled mechanics. Most of the clerks hold on to their positions, their white collars, and their starvation salaries. Some, however, have found it desirable to shift from clerical positions with small pay into manual labor jobs at high pay. By so doing they have not lost as much in social esteem as a similar change would have lost for them some years ago. People have some respect for the fat pay envelope as well as for the white collar, and they have no great respect for the man in shabby clothes who works year after year for less than he has the ability to earn. Furthermore, with the coming of the automobile, for which every man must be more or less his own mechanic, mechanics have risen in public esteem.

12. Most men cannot shift upward: the bottom ranks remain crowded. Despite all the shifting that may take place from occupation to occupation and from one level of occupations to another, and the greater stimulus to new recruits that is offered by the more highly paid occupations, some occupations remain more crowded than others. The most crowded occupations are those requiring

the least ability, the least training and education, and the least experience. For work of the greatest complexity, requiring men of great ability, training and education, and experience, the supply of men is generally small, and men who can qualify are usually highly paid. Relatively to the demand at any given wage, the supply of men of the caliber of railroad and college presidents is smaller than the supply of garbage collectors and ditch-diggers, and the former are more highly paid, although their work is more attractive.

13. **Some natural talent wasted for lack of opportunity: some opportunity, for lack of natural talent.** It should not be concluded from the foregoing discussion that all members of the lower groups of occupations are persons of less natural ability than all members of the higher groups. For the more responsible positions higher up, not only ability, but education, training, and experience are required, and this education, training, and experience are often beyond the reach of persons of considerable natural ability. Education is expensive even in the United States and other countries where free public school systems are maintained. Children in poor families must often leave school early in order to earn a living, and must often begin work at occupations offering little if any opportunity for advancement. Many who could afford the expenses of higher education, and who have the capacity to learn, do not early in life realize the importance of preparing themselves adequately for responsible positions. They discover their handicap only in middle age when it is usually too late to remedy the situation. They then lament the fact they did not take advantage of their opportunity to "get an education." Naturally, a man who has a chance and does not take it is to that degree lacking in ability — the ability to recognize an opportunity. But some fortunate individuals do not have to possess this particular type of ability to win success. They have opportunity practically forced upon them. Their environment is such that they are carried through college and a professional training even against their own wills. On the other hand, in the case of others, every influence of environment — parents, brothers, sisters, friends, associates — tends to draw the victim into blind-alley occupations. The boy endowed with unusual natural ability, alive with ambition, alert to opportunities, may overcome the handi-

caps of poverty and the influence of environment and rise to eminence, but his upward climb is beset with difficulties, and it may happen that his "success" is bought at the cost of practically all the things that make life worth living. If he is unwilling to pay the price of success by sacrificing too much of life, he may remain in the lower ranks despite his ability, while some lazy moron rises to success above him, carried upward by his family connections and inherited millions. It is not only in fiction that we find Jeeves the valet infinitely more richly endowed with brains than his master.

Although by and large it is probable that the level of natural ability is considerably higher among the well paid and successful men than among the ranks of the poorly paid manual laborers and clerks, it is undoubtedly a fact that a great deal of natural talent goes to waste for lack of opportunity and that a great deal of opportunity goes to waste for lack of natural talent on the part of the men to whom it is thrown. There are occasionally garbage collectors whose natural talents if cultivated would have fitted them to be railroad presidents, and railroad presidents whose natural capacity would fit them well to be garbage collectors. There are butchers who should be surgeons, and surgeons who would succeed admirably as butchers, and so on, and it would be to the advantage of society if all these misfits could be placed in their proper station. Such misfits are the exceptions rather than the rule, but we should make such exceptions fewer in number by widening the opportunities for children of ability.

14. Demand for labor as a consumers' good. In addition to the demand for labor that comes from business men who buy labor as a producers' good, there is a demand for labor as a consumers' good. The two demands together constitute the total demand for labor. Many kinds of personal service represent labor bought as a consumers' good; for example, the labor of household servants, valets, and chauffeurs for pleasure cars. The labor of teachers — and of preachers, too — represents consumers' goods rather than producers' goods. States and municipalities and colleges employ teachers, not on a business basis, with an eye to selling their services at a profit, but for the purpose of giving their services to the children and young people as a consumers' good. Preachers are hired

by congregations who enjoy their sermons as a consumers' good. In all such cases the workers' wages tend to be determined, like the price of any other consumers' good, by the price that the least able and desirous consumer is able and willing to pay rather than go without the worker —teachers' wages by the amount that the most poverty-stricken and illiterate communities in which teachers compete for jobs are able and willing to pay; preachers' wages by the most poverty-stricken and irreligious communities in which the preachers compete for jobs. There are exceptional cases, but they are few in number. For some kinds of labor the demand comes wholly, or almost wholly, from business men; for others wholly, or almost wholly, from consumers, either individual consumers or consumers collectively, as in the case of teachers and preachers; and for still others there is a double demand, from business men and consumers.

15. Wages of business men. We have in the foregoing pages placed business men with other groups of workers in the upper two classes of occupations — the small-scale and less successful business man in the fourth group, and the large-scale and successful business man in the fifth group. The incomes of the business men in the upper group exceed by far the incomes of any other group of workers, but they may not be called wages in the sense of a price paid to them for their labor. The income of the business man over and above a fair return on his investment and a fair wage for his labor, such as he might be paid if he worked for another, is profit. Profit, as we pointed out in Chapter IV, may be considered the business man's return for risk-taking and business ability, including initiative, resourcefulness, judgment, and administrative capacity. In a sense, however, the business man's profit may be considered his wages — not paid to him by any particular person or organization, but a sort of impersonal appraisement by society of his services to society. Except when profits result merely from luck or from dishonest practices or monopolistic extortion, they tend to represent the addition to the nation's store of value resulting from the activities of the business man who made them. They mean merely that he has so combined certain kinds of producers' goods of a certain value that the product has a greater value. They mean that people generally are willing to pay more for the product of that business man

than they are willing to pay for the things he used in making the product.

We may, in fact, think of a demand schedule for business ability. There are opportunities in industrial society for a few business men to make huge profits by buying producers' goods, mixing them together, and selling the product at a profit. A somewhat larger number of business men would cause the profits to become more narrow — the prices of producers' goods would tend to rise, and the price of the products would tend to fall. As the number of business men increased in proportion to other members in the community, the marginal vendibility, so to speak, of their services would grow less. But the return of the able and successful business man tends to remain considerably above the wages or salary of equally able men hired by others. This is because business income — business profit — is an uncertain income. The business man must run not only the risk of not receiving any return at all for his labor, but the further risk of losing all his past accumulations in unsuccessful ventures. If it appears that profits of *successful* business men are not generally greater than the wages or salaries of equally able men not running business risks, then some business men retire and seek salaried positions, and young men beginning careers prefer the security of salaried positions to the unrewarded risks of business ventures. Thus the number of business competitors is reduced and the opportunities for profit increased once more. On the other hand, if it appears that business men on the whole are making profits all out of proportion to salaries and wages paid to hired workers after making due allowance for risk, then salaried men and wage-earners are tempted to venture into business for themselves.[1]

16. The general level of wages depends in part upon total output of industry. In the preceding chapter we undertook to show how wages were determined for each group of workers by marginal vendibility of labor of that group, and in this chapter we have shown why marginal vendibility and wages for the various groups of workmen differ. In brief, we have shown why wages may range from, let us say, $1 a day for the ditch-digger, because that represents the marginal vendibility of his class of labor, to $300 or more a day for a railway president because that represents the marginal vendi-

[1] Compare Chapter VIII, Section 12.

bility of his class of labor. But we have not yet explained what makes wages in general, or average wages, high or low. Why is it that in some countries the range from top to bottom is, let us say, $300 to $1, and in other countries from $150 to 50 cents? Or why is it that the skilled mechanic in the United States receives perhaps $15 a day, while in some other countries he receives but little more than that in a week?

Differences in the general level of wages, whether in one country as compared with another, or in the same country at one time compared with another time, depend mainly upon two factors, namely, the total output of industry per capita, and the proportion of this total output that is paid out in wages.

Conditions that favor a large output of products per capita in any country are these:

(1) Strong, healthy, intelligent, well-trained, and willing workers.
(2) Rich and abundant natural resources.
(3) An ample supply of managerial ability of high order.
(4) A great supply of capital, or man-made producers' goods.
(5) Sound political and financial conditions.

Conditions the reverse of these mentioned would be highly unfavorable to a large output per capita.

In all five of these important respects conditions in the United States are favorable as compared with those in most other countries in the world. Our workers, although not perfect in health, intelligence, training, and willingness to work, are probably above the average found in most other countries. Our natural resources per capita are far superior to those of any other advanced industrial country. Our supply of man-made producers' goods exceeds that of any other country, not only in absolute amount, but also in the quantity per capita. No other country in the world has such a combination of natural resources and capital as is represented by our three million square miles of land, with its hundreds of millions of acres of fertile agricultural land, its immense coal deposits, oil fields, iron, copper, lead, and zinc ore, its immense and readily accessible forests, and as is represented by our capital equipment of railroads, paved roads, public utilities, factory and store buildings, and our enormous quantity of marvelously effective machinery. Then our business men, particularly our "big business men," are

famous the world over for their ingenuity and daring in carrying through great enterprises — successfully. Finally, our political and financial conditions are as sound as any, and at present more sound than those of other important industrial countries. On the whole, taking all five of these conditions together, it is doubtful whether there is another country in the world so well fitted to produce a large output of goods per capita.

17. Scarcity of labor relatively to land, capital, and management affects wage level. How large a part of the total output of industry is distributed among the workmen as wages for their labor depends mainly upon the relative abundance of workmen compared with the other factors in production — land, capital, and managing ability. If workers are comparatively scarce and good natural resources, capital, and capable business men abundant, it follows that workers will be in great demand by able managers, working with rich natural resources and plenty of capital equipment; and marginal vendibility of workers will be high — so high, in fact, that employers trying to utilize poor natural resources of any kind, and employers of small ability and with little capital will be forced out of business. The going rate of wages of any class of workers will be the relatively high wages that an able business man, working with plenty of capital on rich natural resources, and rather short of hands, would be willing to pay for an extra hand rather than go without him. In agriculture, for instance, this extra hand might mean an additional output of 500 bushels of wheat worth $1 a bushel. The marginal vendibility of such hands would then be about $500.

If workers are superabundant compared with able managers, natural resources, and capital, not all workers will be able to find employment with able employers working with good natural resources and ample capital, but some will be employed by poor business men, on poor land, and with little capital, and what such employers can pay will determine the marginal vendibility and wages of labor. In agriculture an extra hand might find employment only as a little needed extra hand of a good employer on good land, who already had so many hands that an extra man would not add more than 100 bushels to his total output, or as a hand on land so poor that no man's labor would produce more than 100 bushels of wheat

if applied upon it. Marginal vendibility of such hands, with wheat at $1 a bushel, would not be more than $100.

18. Conclusions respecting differences in wages; money wages and real wages. It follows from the reasoning in this chapter that:

(1) In any country at any time the lowest wages will be found in the most crowded occupations, and that the most crowded occupations, with a few exceptions, will be those requiring the lowest grade of natural ability, the least training or education, and the least experience; and that the least crowded occupations paying the highest wages or salaries will be those requiring the highest degree of natural ability, the most expensive training or education, and the longest years of experience.

(2) Of various countries compared with one another that one will be found to have the highest average wages which offers the most favorable combination of the most efficient workers and the greatest abundance of land, capital, and management per worker.

(3) In any country wages will tend to increase when per capita production of goods increases, particularly if this increase in production is the result of a relatively greater abundance of capital and managing ability or of available natural resources per worker than before.

These conclusions reached by deductive reasoning may be confirmed by actual wage statistics, or by observation. From the foregoing reasoning one would expect wages of skilled mechanics to be higher than wages of common laborers; salaries of college professors to be higher than salaries of high school teachers or country school teachers who need both less ability and less education; earnings of successful doctors and lawyers to be higher than earnings of clerks or mechanics. And such are, of course, the facts. One would expect, also, to find average wages in various occupations to be higher in the United States than in England or Germany because relatively to population we have in this country a combination of land, capital, and managerial ability superior to that found in any European country. And we should expect to find higher wages in England and Germany than in Spain or Italy because England and Germany have a relatively more favorable combination of land, capital, and managerial ability than either Spain or Italy. When we examine the wage statistics of these countries, we find that wages do differ among them just as may be expected. On the third point wage statistics are not quite so conclusive, but in general it will be found that wages do increase in any country as production of goods per

capita increases, particularly in the long run. Temporarily, for a few years, wages may fall while production rises, as seems to have been the case in the United States during some parts of the twenty-four-year period from 1890 to 1914.

In this connection the reader should note the difference between money wages and real wages. Real wages represent the quantity of goods a workman can buy with his money wages. Relatively high money wages may mean relatively low real wages if prices of necessaries of life are disproportionately high. For example, money wages of government employees in the United States increased 33 per cent from 1913 to 1919. But during the same period prices of the necessaries of life rose so much more than money wages that the real wages of these employees actually fell twenty-six per cent. The difference between money wages and real wages is significant not only in making comparisons between one time and another, but also in making comparisons between one country and another.

Other factors which influence money wages and real wages will be considered in the next two chapters on labor organization and labor legislation, and incidentally in various other chapters, including those on money, banking, and the business cycle.

EXERCISES

1. Explain why there are differences in wages among different classes of workers in the same country.
2. If all men were equally able, and all work equally attractive, would there be differences in wages? Why, or why not?
3. Why is the least attractive work often paid for at very low rates, while in some cases attractive work is paid for at very high rates?
4. Why are wages for all classes of workers higher in some countries than wages of the same classes of workers in other countries? Describe the conditions favoring a general high level of wages for all classes of workers in any country.
5. Since the World War immigration into the United States has been severely restricted. Suppose that without such restriction 5,000,000 additional unskilled laborers had entered this country: what would have been the probable effect on wages? Why?
6. If the people of the United States could and should trade their natural resources and capital for the natural resources and capital of France and Germany, what would be the probable effect of the trade on the wages of Americans? On the wages of the French and Germans? Why? Provided that the French and Germans each received half of the natural resources and capital of the United States in the trade, which people would ten years later enjoy the highest wages, the Americans, the French, or the Germans? Why?

REFERENCES

I

Carver, T. N. *Distribution of Wealth*, chapter 4.
Edie, L. D. *Economics: Principles and Problems*, chapter 19.
Ely, R. T. *Outlines of Economics* (1923 edition), chapter 22.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 38 and 39.
Seager, H. R. *Principles of Economics*, chapter 15.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 47 and 48.

II

Davidson, J. *Bargaining Theory of Wages.*
Moore, H. L. *Laws of Wages.*
Taussig, F. W. *Wages and Capital.*

CHAPTER XXI

LABOR ORGANIZATION

1. Wages under competitive conditions. According to the reasoning employed in Chapter XIX, on Demand Schedules for Labor, wages of any particular class of workers tend to be determined by the marginal vendibility of their labor. That is to say, any class of workers as a whole will tend to receive wages equal to the amount the least able employer is able and willing to pay for the least desired unit of the labor that he employs rather than go without it. If at the bottom of the scale of efficiency there is a group of employers about equally competent, or rather incompetent — and this is likely to be the case when the number of employers is large — then wages tend to be determined by the amount this group of incompetent employers is able and willing to pay for the least desired workers of the given class actually employed rather than do without them. This wage rate will be much below the rate that the more competent employers could afford to pay for their workers on the average and still make a profit. It may not, however, be below the rate that the more competent employers will be able and willing to pay for additional workers beyond the number they already employ. The tendency is for any employers to hire additional men if these men are worth more to them than the current rate of wages. If under free competition any employer were able and willing to pay more for workers than the current rate being paid by other employers, workers would tend to drift into his employment and leave their old employers short of hands. This wage rate may be above the rate that the most incompetent employers can pay and make a profit. It may be a rate that involves them in a loss, but a loss smaller than the loss involved in closing down their plants.

The ideas here expressed may be illustrated by the figures in Table XXV, representing supposititious conditions in the shoe industry.

In this table of assumed wages and profits it is assumed that all shoe workers are of the same class and that all receive equal wages, $20 a week, which represents the marginal vendibility of their grade

TABLE XXV. ASSUMED WAGES AND PROFITS IN THE SHOE INDUSTRY

GRADE OF EMPLOYERS	NUMBER OF EMPLOYEES	AVERAGE WAGE PER WEEK THAT COULD BE PAID WITHOUT LOSS	ACTUAL WAGE RATE	TOTAL WAGES	TOTAL PROFITS
A	10,000	$28	$20	$200,000	$80,000
B	20,000	24	20	400,000	80,000
C	30,000	21	20	600,000	30,000
D	30,000	20	20	600,000	
E	20,000	18	20	400,000	− 40,000

of labor under the assumed conditions of demand and supply. Although there are many classes of shoe workers under actual working conditions in the industry, this assumption does not invalidate any conclusions that may be drawn, and it does simplify our illustration. The A grade employers are represented as paying the same wages as all other grades, but as being able to pay wages of $28 a week, or an increase of 40 per cent, and still not suffer a loss. In other words, their profits are 40 per cent as great as their payroll, and if paid out in wages would raise the wage level 40 per cent. This represents the maximum this group of employers could afford to pay in wages in the long run and still stay in business. Similarly $24 represents the maximum the B grade employers could pay, $21 the maximum the C grade could pay, and $20, or the actual rate being paid, the maximum the D grade employers could pay. The E grade employers are shown to be paying $2 a week more than they can afford to pay if they are not to lose money, and this overpayment is involving an aggregate loss of $40,000 a week, which indicates that sooner or later this group must reduce wages, cut other costs, increase efficiency, obtain higher prices, or go out of business. So long, however, as employers in general are able and willing to pay $20 a week for the available supply of shoe workers, the E group must meet the competition and cannot reduce wages. The only reason why the E grade will continue paying as much as $20 a week is because they cannot get their workers for less, and will pay that much rather than not retain their working force. At this wage rate, it is true, they are losing money, but on account of indirect costs they might lose more if they ceased operations and let their workers go. Marginal vendibility we may say, then, is here assumed to be $20 a week.

But, as pointed out in Chapter XIX, marginal vendibility does not necessarily determine the exact wages paid by all employers. It only tends to determine the rate. Some employers may pay more than they need to, either because they believe better pay means more and better work or for purely philanthropic reasons. The A grade employers may, for example, pay $25 a week, thus sharing their profits with their employees. They would not, however, take on any additional workers that might be attracted by the high wages being paid. On the other hand, some employers might try to force wages down below the true competitive level of $20 — that is, below the amount they would be able and willing to pay for their least desired workers rather than lose them — and they might succeed in doing this by reason of the weakness of the individual worker in bargaining with the shrewder and more powerful employer.

2. Forcing wages below the true competitive level. In fact many students of labor problems hold that under competitive conditions wages tend constantly to sink below what we have called marginal vendibility, or what may be called the full competitive wage level — that is to say, below the level that the least effective or least desired worker is worth to his employers, and the wage that they would really be able and willing to pay him rather than not retain or procure his services. The mere fact, they hold, that the least effective worker in the group may be worth $20 a week to various employers in the industry is not sufficient reason for assuming that he will automatically be paid $20. The worker is less skilled in judging business conditions than the employer, and has no way of knowing just what he is worth on the strict marginal vendibility principle. It may be more or less than $20, and if his employer assures him that $18 is all that can be paid for his services, he is likely to accept it rather than lose his job. Even if he has reason to think that in another city some distance away he could get $20, the expense of moving his family and personal belongings, if he is a married man, and the reluctance he might feel at taking his children from one school and putting them into another in the midst of the school year, and at breaking up ties of friendship, would perhaps impel him to stay, hoping for an increase in wages later on.

If he undertakes to argue with his employer on the matter of wages, he is at a hopeless disadvantage. He needs the job worse than

his employer needs him. Threatening to quit if forced to accept a reduction may be futile. If he does quit, his employer needs only to replace one out of scores, or hundreds, or even of thousands of employees, and this is ordinarily a simple matter, and may be more than worth the trouble to the employer by serving as an example to others on whom a reduction in wages is to be forced later on. If the workman who quits because his wages are reduced finds himself for weeks without work, and thus brings his family to the verge of starvation, he and others like him who hear about his plight will think twice before lightly arguing with their employers on the question of wages.

Aside from the fact that the worker needs his job worse than his employer needs him, he is at a disadvantage in bargaining. He bargains but rarely. His employer is bargaining always, since it is by bargaining in buying and selling that the employer makes his profits. It is a case of an amateur against a professional. The worker is likely to be timid and apologetic; the employer bold and arrogant. The worker, in fact, is likely to be convinced that he is extremely lucky to have a job at all, or even the right to live. He may be, and often is, not even given a chance to present his case to his employer or any responsible official, but may deal only with a foreman with orders to offer so much and no more, and the injunction to tell the workers to take it or leave it. For such reasons as these it is held by many writers and believed by many workmen that wages tend constantly to fall below rather than to remain at the full competitive level.

It is not only the least competent employers who help to force down the level of wages, but the more competent ones as well. Reverting to Table XXV, grade A employers, who could afford to pay their 10,000 shoeworkers $28, as well as grade E, who could afford to pay their 20,000 $18, may both actually offer only $15 or $16, and thus profit from the workers' weakness in bargaining.

Two regrettable consequences may ensue. First, the more brutal and heartless employers in the industry, having forced down the wages of their employees below the level paid by the more decent employers, find their costs reduced and their profits increased. They are now in a position to expand more rapidly out of profits than the others, and, if need be, undersell them to gain a wider market. Thus it becomes more difficult for any employers to maintain the former

full competitive wage level. Even the good employers, forced to reduce prices to meet competition, must reduce costs by reducing wages, even against their will. Marginal vendibility, in fact, has thus been forced downward. What the least effective worker is now worth is less than before, to the good and the bad employer alike. A new cycle of wage-cutting is then set in motion by the bad employers, resulting in further cuts by the good employers, and so on and on, in a vicious circle. Now it might be argued that the reduction in prices made possible by cuts in wages would reduce the cost of living in proportion to the reduction in money wages and that the workers would not be injured by the process. Their real wages and their standard of living would remain the same despite the fall in their money wages. Wages, however, constitute only a part of total costs of production, and costs of production and prices will not be reduced proportionately as much as wages. Moreover, reduction in prices is not likely to be general, and cost of living of the workers subjected to wage cuts may fall but little and perhaps not at all.

The second consequence follows from the first. If wages are thus gradually forced downward, the workers are progressively debased. Their wages fall below the minimum of decent subsistence, and they degenerate as a result of undernourishment, improper housing, lack of recreation, and privation in general. They become less efficient workers and become worth less to their employers, so that marginal vendibility of their labor falls still further, thus setting in motion another vicious circle. Not only the present generation of workers is thus debased, but future generations, since the children of underpaid workmen suffer from undernourishment and other privations, and must often be set to work at disease-breeding employments to eke out a living wage for the family. In this analysis we are concerned primarily with determination of wages. But it may be noted at this point that working conditions in general, as well as wages, are affected by the unequal bargaining power of employer and employee. The brutal and selfish employer may force his employees to work long hours, in ill-lighted and poorly ventilated workrooms, and exposed to the menace of occupational disease arising from irritating dust, poisonous fumes, and so on, and subject to accidents through the lack of adequate safety appliances in the factory.

One need only to read economic history to learn that actual conditions among wage-earners under conditions of unfettered competition have at times tended strongly to confirm the conclusions reached by the foregoing reasoning. Undoubtedly unregulated competition does tend to produce deplorable results among wage-earners, particularly among the lower grades, who because of their peculiarly weak position in bargaining individually with strong employers are the more likely to make bad bargains and sink into a condition of poverty destructive to health and self-respect. One should not, however, assume that competitive conditions among unorganized workers are the sole cause of poverty and distress, and that organization is all that is required to bring universal prosperity to all the workers of the world.

3. The advantages to the workers of labor organizations. The foregoing discussion of wage conditions of unorganized workers freely competing for jobs with competitive employers not only indicates that workers could gain substantial advantages by organization, but suggests the nature of the labor organization that will best serve their purpose — that of raising their wages and otherwise bettering their conditions of employment. Wages tend to sink to low levels, first, because marginal vendibility tends to fix wages for all workers in the group; second, because some employers, by taking advantage of the weakness in bargaining power of individual workers, force wages below the full competitive level; third, because good employers must under pressure of competition follow the example of bad employers; and fourth, because laborers suffering privation resulting from chronic underpayment degenerate physically, mentally, and morally, and thus become less efficient workers, making further cuts in wages necessary.

If now all the workers in a given wage group, as our shoemakers in the assumed case in which all workers are in the same class, form a solid organization, elect officials, and choose a few keen-minded and self-confident men from among their number to bargain with employers in respect to wage rates and other working conditions, an entirely different state of affairs is presented. Employers intent upon forcing wages as low as possible no longer find themselves dealing with individual workers, timid, apologetic, fearful of giving offense, and perhaps dull-witted and uncertain in their demands,

whom they may often browbeat into accepting needlessly low wages and disagreeable working conditions. Instead, employers will find that the workers are now pitting professional bargainer against professional bargainer, meeting shrewdness with shrewdness, boldness with boldness, and arrogance, if need be, with arrogance. Not only do employers now find themselves faced by men more competent to hold their own in argument, but they find themselves bargaining on more equal terms, with as much to lose as the workmen, and even more, if no satisfactory agreement is reached. Sitting across the table from the labor union official the employer must decide the question, not of hiring or firing a single worker, but of deciding whether to meet the workers' demands or close down his plant, since under organization the workers can now use the weapon of the "strike" or concerted withdrawal from work in the shops of the employer who fails to meet their demands. He is brought face to face with the question, not of how much he is able and willing to pay for a few additional workers rather than go without them, but of how much he is able and willing to pay to all his workers on the average rather than close down his plant temporarily or even permanently. Instead of being able to force down wages below the full competitive level, he may be forced to pay more than the full competitive level, perhaps nearly as much, or quite as much, as his workers are worth to him on the average.

4. Forms of labor organization. In the foregoing discussion of the advantages of labor organization to the workers, the assumption has been made that all the workers of a given class in a given industry were organized and bargained collectively with their employers. But labor organizations may be of various forms. We may distinguish from one another the labor union, the industrial union, the trade union, and the shop union, classified according to the scope of the organization. The first three are ordinarily national in scope. The labor union attempts to enroll all workers in all industries; the industrial union, all workers in a given industry; and the trade union all workers in a given trade. The shop union is a union of workers in a single business organization.

It was assumed also in the preceding section that the purpose of the labor organization was to bargain collectively with the employers in order to obtain higher wages and better working conditions

for the members of the union. This type of union may be called the business union, which strives to better the conditions of the workers by compelling the employers to share their prosperity with the employees, and has no avowed purpose of overthrowing the present industrial system or of reforming the world in general. Professor Hoxie, an authority on labor organization, recognized three other distinct types of unions, classified according to purpose — the uplift union, the revolutionary union, and the predatory union, the names indicating clearly enough their purpose.

The uplift union is described as one that strives by all peaceful and law-abiding methods possible to improve the conditions of the workers — by collective bargaining, by mutual insurance, by legislation, by education, and so on. Its activities are employed in behalf of all workers, and not merely of one class, and it becomes therefore a labor union, and not merely an industrial, trade, or shop union. The best example of the uplift union in the United States is also the best example of the labor union, namely, the Knights of Labor, an organization which flourished in the eighteen-eighties, and had at its best a membership of perhaps three quarters of a million men. The Knights of Labor did not, however, always stick to peaceful methods, but at times resorted to violence, and the opposition thus aroused, together with the inherent weakness of this union in trying to serve the interest of widely different classes of workers in all industries, caused the organization to fall to pieces during the late eighties and the early nineties, while trade unions came to the front as the dominant form of labor organization in the United States.

Most of the trade unions in the United States may also be called business unions, their purpose being to improve the condition of their members without destroying the present system of industry — namely, private ownership and operation of industrial equipment and production for profit. Some of the trade unions are, however, rightly called predatory unions, being in form the same as the business trade union, but resorting to various abominable practices to gain their ends or the ends of their officials, including violence, bribery, and monopolistic combinations with employers in restraint of trade.

The revolutionary union has either as its immediate or as its ultimate aim the destruction of the system of capitalistic production,

with the ownership of industrial equipment mainly in the hands of rich employers, and the setting up of some other form of industrial organization, such as state socialism, syndicalism, or communism. In the United States, and in other countries, unions of the industrial form are likely to be revolutionary in purpose. American examples of industrial unions with revolutionary aims are the Industrial Workers of the World, now declining in importance, and the Amalgamated Clothing Workers. The revolutionary industrial union may, and does, in some cases, as in the case of the Amalgamated Clothing Workers, adopt the policy of the business union for its immediate purpose — that of improving the conditions of its members — looking to the distant future for the realization of its ultimate aim — the control of industry by the workers.

For nearly forty years the national trade union has been the dominant form of labor organization in the United States, presumably because the workers have learned that this form of union best serves their purpose. In more recent years, however, industrial unions have been growing in relative importance, and rivalry is keen between the older type of trade-unionism and the so-called new unionism represented by various industrial unions. The strength of the trade union lies in its comparatively narrow membership of workers having practically identical interests, who can be induced with relative ease to stick together and present a solid front in bargaining with their employers for wages and working conditions advantageous to themselves. The greatest weakness of trade-unionism lies in the fact that it tends to leave the unskilled workers unorganized, since, strictly speaking, they have no trade; and it is these workers who particularly need the advantages of organization to maintain their wages at a decent level. A further disadvantage of trade-unionism is that the various workers in a given industry are separated into many trades, and each trade tends to strike the best bargain it can for itself regardless of the interests of the other organized trades and the unorganized masses below them. It destroys what the revolutionary unionists like to call the solidarity of the working class. It is held by some writers that recent developments in industry tend to weaken the position of trade-unionism; the increasing use of machinery is tending to wipe out craft or trade lines and reducing most workers to a more or less uniform class of ma-

chine tenders. In the Ford automobile factories, for example, about five per cent of the employees are said to be skilled moulders and core setters and the other ninety-five per cent are skilled in only one operation, of a kind which even a stupid man can learn in two days, such as putting in a bolt or fastening a nut.[1] The industrial unionists maintain that the industrial union is the form of organization that in the years to come can bargain most effectively with the employers. However this may be, trade-unionism has long been and remains at present the dominant form of organization, and the great membership of trade unions shows clearly that the workers in the various trades believe that they reap gains from this form of organization.

5. The extent of labor organization. Table XXVI shows the membership of American trade unions from 1897 to 1923, and indicates a persistent increase in numbers despite occasional setbacks. The high-water mark of organization was reached in 1920, when the membership in unions was 5,110,800.[2] In that year the total population of the United States was 105,710,620. Trade-union membership has therefore not reached in any year five per cent of the total population. This fact is sometimes pointed out by persons who desire to belittle the trade-union movement as an indication of the relative unimportance of the organized labor group as compared with the unorganized workers in industry. But such a comparison leaves out of account important facts. All the people are not gainfully occupied, and not all persons gainfully occupied are wage-earners, and not all wage-earners are in groups that may be called organizable.

The total working population of the United States in 1920 may be said to have numbered approximately 40,000,000, and the total number of wage-earners, 25,000,000. About twenty per cent of the wage-earners were, therefore, organized in 1920. But some divisions of industry are more highly organized than others. In trade or commerce, professional service, clerical occupations, domestic and personal service, and public service, labor organization plays a minor part. The percentage of organized workers in these occupations in no case reached as high as ten per cent. On the other hand,

[1] Edie, *Economics, Principles and Problems*, p. 56.
[2] This includes industrial unions as well as trade unions.

in mining the percentage of organized workers was forty-one per cent of the total; in manufacturing, twenty-three per cent; in transportation, thirty-seven per cent; and in the building trades, twenty-five per cent. In certain occupations in these divisions of industry the percentage of workers organized was considerably higher. For

TABLE XXVI. TOTAL MEMBERSHIP OF AMERICAN TRADE UNIONS, 1897–1923[1]

YEAR	MEMBERSHIP	YEAR	MEMBERSHIP	YEAR	MEMBERSHIP
1897	447,000	1906	1,958,700	1915	2,607,700
1898	500,700	1907	2,122,800	1916	2,808,000
1899	611,000	1908	1,130,600	1917	3,104,600
1900	868,500	1909	2,047,400	1918	3,508,400
1901	1,124,700	1910	2,184,200	1919	4,169,100
1902	1,375,900	1911	2,382,800	1920	5,110,800
1903	1,913,900	1912	2,483,500	1921	4,815,000
1904	2,072,700	1913	2,753,400	1922	4,959,400
1905	2,022,300	1914	2,716,900	1923	3,780,000

example, fifty per cent of brick and stone masons were organized, fifty-seven per cent of steam railroad employees, and eighty-five per cent of workers engaged in water transportation.

In some European countries the percentage of workers organized is greater than in the United States, notably in Germany and Great Britain, the number of trade-unionists in these two countries in 1920 having exceeded 9,000,000 and 8,000,000 respectively, as against the 5,000,000 trade-unionists in the United States.[2]

6. The American Federation of Labor. With some important exceptions, the trade unions in the United States are members of the American Federation of Labor. The American Federation of Labor, it should be noted, does not itself bargain directly with employers, but is merely a loose federation of the bargaining unions. It is useful to its members mainly in carrying on publicity favorable to various trade-union policies, such as higher wages, shorter hours of

[1] Wolman, *The Growth of American Trade Unions, 1880–1923*, p. 33. Reprinted by permission of the National Bureau of Economic Research.

[2] The trade-union statistics of this section are from Wolman, *The Growth of American Trade Unions, 1880–1923.*

work, and so on, and in extending aid to trade-union members in the form of strike benefits or otherwise. The trade unions themselves are organized on a national scale and have local unions in every city where the number of possible members justifies a local. The various local unions representing the various trades in a given city are federated into a city central body, and the various local unions and city central bodies in a given state are joined together in a state federation. The city central bodies and the state federations, as well as the national trade unions, are members of the American Federation of Labor, or the A.F.L. In 1924, according to Samuel Gompers, the A.F.L. had a membership of 2,865,979, organized into 107 national trade unions, 49 state federations, 855 city central bodies, and 32,157 local unions. Important trade unions not in the A.F.L. are the four powerful railway brotherhoods, the locomotive engineers, locomotive firemen, railroad trainmen, and railway conductors.

Although the American Federation of Labor includes in its membership workers from a great variety of industries and trades, and tends to some extent to function as an industrial union and as a labor union and uplift union, all these activities are subordinated to the chief business of its member unions, the trade unions — namely, bargaining for higher wages and better working conditions for the individual trades they represent.

7. **The essentials of the collective bargain.** Consider now the essential elements of a successful collective bargain between a labor organization and competing employers. Assume that the union in question is the union of shoe workers of our imaginary shoe industry in which there are 110,000 employees working for a considerable number of employers of varying degrees of business ability and varying capacity to pay wages. First of all, the shoe workers' union must include in its membership a large proportion of all workers in the industry or the trade which they represent. In our simplified assumed case we make all shoe workers of the same class, so that our union is both a trade union and an industrial union. Second, the workers must choose representatives from among their number, or possibly outsiders, to bargain for them, and employers must recognize these representatives as the spokesmen for the workers. Third, employers must agree to pay a "standard minimum rate" of wages;

that is to say, wages per day or week for a given class of workers must not fall below a stated minimum, and wages paid by the "piece" or unit of product must not fall below a stated minimum per piece. This standard wage must be paid not only to members of the union, but to any employees who are not members of the union, and it must be paid by practically all the employers in the industry. Fourth, if wages are paid by the day or week, the hours of labor must be specified in the agreement and no worker must be permitted to work longer than the standard number of hours per day, and this must hold for practically all employers in the industry, and even if wages are paid by the piece, or unit of output, hours of labor ought to be limited to a certain maximum.

These are essential conditions of a successful collective bargain for reasons that can be presented in brief form. It is to be assumed in all cases that some employers will accept only under compulsion, collective bargaining in the place of individual bargaining with their workers and that some employers, who ostensibly accept the terms of the collective bargain in respect to wages, hours of labor, and other matters, will violate the agreement whenever it is to their interest and within their power to do so. Therefore, the following things are true: Unless the union embraces in its membership a large proportion of the workers in the trade or industry concerned, some employers will continue to operate their shop with non-union employees, or, as the expression is, they will run non-union shops. If some employers are able to continue running non-union shops, and by reason of individual bargaining manage to keep their wage level below the union wages paid by their competitors, they can undersell the latter, and make it more difficult for them to continue paying the higher level of wages. Furthermore, the non-union employers may make greater profits than the union employers, expand their output, and gradually drive the latter out of business, or at least reduce the proportion of the total business of the industry in the control of employers of union labor.

Unless the employers recognize the union officials as spokesmen for members of the union, there is, of course, no collective bargain. If the employers do not agree to pay at least the stated minimum wage by the day or week, or by the piece, but insist that they may hire workers for less than the minimum if any are willing to work for

less, the collective bargain fails of its purpose. Any member of the union would be willing to work for less than the union rate, presumably, if he were given the choice between accepting the reduction and the loss of his job. In that case the collective bargain would be merely a scrap of paper, ostensibly in operation, but in fact supplanted by a large number of individual bargains.

Unless the non-union men employed are paid the same wages as union men, employers will have a persistent incentive to discharge union men and hire non-union men, whenever the opportunity presents itself, and thereby discourage membership in the union during periods when not everybody can get a job, which is a considerable part of all the time under modern industrial conditions.

Unless hours of labor are standardized, employers may offset the higher wages obtained through collective bargaining by longer hours of labor.

If any employers in the industry, through some defect in the collective bargain, are able to force wages below the union level, or cut down costs by longer hours of labor, or otherwise, these employers gain advantages over others that may force the latter out of business or at least hamper their continued operation and expansion.

Trade-union officials are, therefore, insistent that the essential conditions of successful collective bargaining be realized in their particular organizations. They strive to organize the greatest possible number of workers in the trade, insist upon recognition of the union officials as spokesmen for the union members, demand that the union scale of wages shall prevail for both union and non-union employees, hold out for the standard rate of wages, and make special efforts to "unionize" any shops that may be operating with non-union men. In our imaginary example we have assumed equal wages for every member of the union, but there may be, of course, many rates of wages — each rate the standard rate for a particular class of workers. In the actual shoe industry, there is one standard rate for sole-cutters, another for lasters, and still another for edge-trimmers, and so on, and some workers are paid by the piece while others are paid by the week.

A by-product, but an important one, of the essential conditions of successful collective bargaining is the closed-shop controversy. As already stated, non-union men must be given the same wages as

union men if the latter are not to be discriminated against in employment. But to give non-union employees the same wage as union employees is to offer a reward for not joining the union. Union members pay dues to support the organization — perhaps twenty-five cents a week or more. Non-union men get all the benefits conferred by the union without assuming their share of the expenses of the organization. Some men are not very favorably disposed, anyway, toward joining the union and this economic advantage of not joining, added to their predisposition not to join, keeps them out of the union. Against these men dues-paying union members tend to harbor a resentment. A demand may then be made upon employers to hire none but union men, or men who will join the union if employed. This is the demand for the "closed shop," the shop closed to all except union men.

8. Labor controversies. Many controversies between trade unions and employers grow out of differences in opinion concerning the essential elements of a collective bargain. Many employers agree that the principle of collective bargaining is sound — that employees as a group may rightly insist upon selecting a spokesman to present their case to their employers. But some of these employers object to dealing with "outsiders" who do not understand the special conditions in their plants. They insist upon bargaining only with their own employees, either individually or through representatives chosen from among the employees. They refuse to "recognize" trade-union officials and term them meddlesome trouble-makers. In short, these employers are willing to recognize *shop unions*, made up of their own employees, but will not recognize *trade unions* and their officials. It is easy to appreciate the point of view of these employers. Their attitude does not seem to be an unreasonable one. Often it is the outcome of past dealings with trade-union officials who might truthfully have been called meddlesome trouble-makers. Often trade-union officials attempt to impose upon an employer labor contracts which are unsuited to his peculiar conditions and insist upon policies which if accepted by the employer must inevitably lead to his ruin. Sometimes, too, the trade-union officials may be of the corrupt and criminal type of the predatory union, resorting to such tactics as offering to sell immunity from strikes and labor troubles for a stated sum of money paid to them-

selves, or threatening to inflict a strike upon a decent type of employer unless bought off by a substantial bribe or the like.

But even if one may understand the point of view of and sympathize with the employer who refuses to recognize the trade union and its officials, and who insists upon dealing only with his own employees, one cannot fail to note the reasonableness of the opposing point of view. The shop union fails to give the workers the power by means of which alone they can compel employers to share their prosperity with the workers, or by means of which they can prevent the grasping employer from forcing wages below a decent minimum. For one thing the shop-union spokesman is himself an employee of the employer with whom he bargains and is subject to discharge by him. He is, therefore, bargaining at a disadvantage. In the second place, a good bargainer may not be found in every shop. In the third place, some shops may have an ineffective union or no union at all, so that some employers are free from union pressure, and in such shops wages may be forced down by grasping employers. Under these circumstances even those employers who are disposed to pay high wages and provide decent working conditions for their employees may be forced by pressure of competition to follow the example of the worst type of employer, for reasons already given in this chapter.

Some employers, although willing to recognize the trade union, object to the payment of the standard rate, maintaining that it has a deadening influence upon the workers because it removes the incentive to good work that is provided by wages differing from man to man according to work performed. Trade-unionists insist that this argument is defective because employers may, if they see fit, reward the worker of great industry or skill by paying him more than the standard minimum. It seems to be true, however, that the standard minimum demanded by the union often becomes the common wage of all workers.

Some of the most bitter disputes arise over the closed-shop question. The union officials may insist upon the closed shop for reasons already given, namely, that if non-union men, who pay no union dues, are given the same wages as union men, a direct bribe is offered to men not to join the union, and if they are paid lower wages than union men, a direct incentive is offered to employers to discharge union men and hire non-union men whenever possible.

Employers, however, object vigorously to the closed shop. If they cannot employ non-union men, their supply of labor is restricted and their bargaining power is considerably weakened. In case of a dispute with the union and a resulting strike, all their men would withdraw from work and an entirely new staff of employees could neither be secured without great difficulty nor organized into an efficient body of workers without great loss. The closed shop generally in force throughout the industry would furthermore be a powerful lever in the hands of union officials by means of which to force a practically one hundred per cent enrollment of workers in the union, since workers would be compelled to join the union as a condition of securing employment. In case of a strike, then, the employer concerned would find no non-union men to take the place of the strikers. Employers would in fact be put in the position of being unable to operate without coming to an agreement with the union. Union officials under such circumstances might become dictatorial and insist upon terms not only ruinous to the employers, but detrimental to the public welfare. Wages might be forced up to unreasonable levels and hours be unreasonably reduced. Furthermore, union officials by various tactics that have frequently actually been applied might undertake to create an artificial scarcity of labor and thus make possible higher wages for the members of their union. First of all, they might restrict membership in their union by laying obstacles in the way of apprentices' learning the trade, if the union were one of a highly skilled trade, such as machinists, pattern-makers, bricklayers, and so on. Secondly, they might restrict in an unreasonable degree the amount of work a man is permitted to perform in a day, or they might restrict the use of labor-saving machinery, these tactics having the same effect as reducing the number of men available. Not only would all this tend to reduce the profits of the more capable employers and to drive the less capable ones out of business, but it would tend to increase the cost of production to such a degree as to result in a rise in price of the product. Moreover, the quantity of goods produced would tend to be cut down in every industry in which such labor tactics were applied, to the detriment of the people as a whole — including the trade-unionists themselves. That these policies may be pursued in some cases does not condemn the closed shop in all cases.

The case for the closed shop seems at least as good as the case against it, provided only the unions do not resort to restriction of membership in the union and to limitations on the amount of work that may be done per day beyond those limitations that are merely a reasonable safeguard to the health and safety of the workers. But the closed shop must be condemned when it is made an instrument in the hands of union officials to establish a labor monopoly and to restrict output. The closed-shop controversy should be judged on its merits in each particular case, and the public should view with suspicion the pious protestations of both parties to the dispute over the closed shop when it arises, that they are only defending the Constitution, with the sacred liberty it guarantees, from its enemies, the ruthless trade-union officials or the despotic capitalistic employers, as the case may be.

9. How much may be gained by trade-unionism? In preceding sections of this chapter the reasoning has pointed to possible gains that may be secured by the workers through trade unions, or for that matter through industrial unions or shop unions. It seems clear that through organization workers may force wages above the level that tends to prevail when the workers bargain individually. But how much can be gained? How high may wages be forced, and how low may hours of labor be reduced? On this point opinions differ, all the way from the point of view that wages are fixed once for all by economic law and cannot be changed by organization, to the point of view that there is no limit to the gains to be achieved if workers only stick together and clamor loud enough, and, if need be, fight hard enough. Both extreme points of view are clearly wrong. Somewhere in between lies the truth. Just exactly how much labor organization may raise wages and otherwise improve labor conditions no one can say, but the unbiased student may point out certain more or less well-defined limits beyond which gains would be difficult to achieve and hold and beyond which they would be obtained with extreme difficulty.

To begin with, it may safely be said that if wages are below the "full competitive level," the level that the various employers in the industry concerned would be able and willing to pay rather than do without the services of the least desired workers, wages may readily be raised to this level by collective bargaining, provided the

essential conditions of collective bargaining are present — namely, if a large proportion of the workers in the trade or industry concerned are organized, if the representatives chosen by the union members are recognized by practically all employers in the industry, as spokesmen for the union, and if the employers accept the principle of the standard rate and standard hours of labor and apply it to non-union men as well as to union men. That is to say, with these conditions realized, wages could be raised in our imaginary shoe industry as represented by Table XXV, on page 388, to $20, if they were below that figure.

At this level, however, our lowest grade or least efficient employers, the E group of our table, would be losing money — losing less, however, than they would lose if they quit, as has already been pointed out. But to keep on losing in the long run is impossible. Eventually they would be forced to suspend operations and their employees would be discharged. The union would now have to take care of these unemployed workers either by weekly unemployment benefits, which unions sometimes pay to their members, or by finding employment for them in the union factories still operating. Otherwise the unemployed workers would tend to find employment at less than union wages with employers running non-union shops. It is reasonable to assume that practically all of these discharged workers could find employment in the shops of the more efficient manufacturers, who would have gained the business lost by the firms that suspended operations and who would therefore need more employees.

Suppose now that the union has gained its point, wages are up to the full competitive level of $20, with the E grade employers gradually being forced to the wall and their employees drifting into the employment of the manufacturers in groups A, B, C, and D. Suppose that the union officials now demand $21 a week, all that the C grade employers can pay without loss, and $1 more than the D grade employers can pay without loss. If the manufacturers grant this wage increase rather than provoke a strike by refusing to grant it, the D grade employers, who are now losing money, will tend to follow the E grade employers out of business. Their employees, 30,000 as given in our table, will have to find work elsewhere. Possibly they will be absorbed by employers of the A, B, and C groups,

just as before the workers of the E group were absorbed by the more efficient manufacturers remaining in business. Conceivably the workers might then press forward for an increase in wages to $22, which would tend to drive out of business the C group of employers, who can afford to pay only $21 if they are to continue operating long, and conceivably the workers thus thrown out of work might find employment with the A and B group of manufacturers, able and willing to pay in the long run $28 and $24 respectively.

But these successive moves for wage advances would bring increasing difficulties. Every increase in wages would tend to reduce the profits of employers if they were making profits, or to increase their losses if they were suffering losses, unless the workers did more and better work for the higher wages, which cannot be assumed to be the case always. In part this loss to the employers remaining in business would be offset by their larger output if they captured the business of those who were forced out by high wages, but once a business man is producing at less than cost, expansion in output only increases his loss unless substantial economies of large-scale production are realized. Producing at a loss or at a narrow margin of profit, the remaining employers would have little desire and less capacity to expand their plants, and could not therefore absorb the men thrown out of work by the failure of the less competent manufacturers. At the same time the desire on the part of old producers and prospective new producers to run non-union shops and escape the wage exactions of the union would be increasing with every rise in the union rate. At the same time, too, workers in other trades or industries would be attracted by the higher wages being paid to the shoe workers, and would apply for jobs and for membership in the union. Under these circumstances it would become very difficult to find employment for all shoe workers at union wages and to prevent the establishment and expansion of non-union shops paying less than union wages.

A possible solution of the problem for the union would be to restrict membership in the union to a certain maximum figure and employ all conceivable tactics to prevent the employment of non-union men in shoe factories. Unless it gained the coöperation of practically all employers, it would become necessary to resort to violence in order to intimidate non-union workers from taking employment

in non-union shops. In order to permit employers to pay the high rate of wages demanded to all members of the union, it might resort to restriction of output by shorter hours, less use of labor-saving machinery, slow work, and so on. Thus fewer shoes would be produced and the manufacturers could charge higher prices and presumably get more in the aggregate for a smaller number than for the larger number previously produced. In certain instances employers as a group have entered into such agreements with a trade union to restrict output, thus establishing a monopolistic condition permitting the favored wage-earners to secure higher wages and the monopolistic producers to enjoy greater net gains. In such an industry as the shoe industry, however, such monopolistic agreement could not long endure, because of the ease with which additional workers may learn their trade and new producers can establish themselves in business. In fact, there are at present few industries in which it could long succeed.

In our hypothetical case we have considered all workers in the shoe industry to be members of the union and have considered wages of all the workers to be raised together. In such cases our conclusion must be that organization may bring some increase in wages and some bettering of working conditions in other respects, but that unless the workers do more and better work than before no remarkable increase in wages or decrease in hours of labor can be brought about by organized effort. Workers may, however, do more and better work when receiving higher wages, and when this is true employers may be no worse off afterwards than before, and may on the average even be better off. Particularly in the matter of reducing hours of labor from the unreasonably long hours of ten or twelve a day to eight or nine, it may be found, and has in some cases been found, that more work is done in the shorter period than in the longer period. When this is the case a real net gain is achieved.

If the workers in a highly skilled trade form a union, and if the members of this union constitute only a small percentage of the workers employed in the various plants where they work, they may through organization raise their wages very substantially. If their wages in a given plant constitute only five per cent of the total costs of the producer, a hundred per cent increase in their wages will increase total costs only five per cent, and may in fact increase

total costs less than that. The various competing business men requiring their services may, when compelled to pay more for this class of labor, offer less for some other class of labor or other cost item. A tight union, then, in such a trade, represented by able bargainers, may raise its members to comparative affluence within a short time. An example of this sort is the Brotherhood of Locomotive Engineers. To a certain degree most of the American trade unions have profited from such conditions. They have been able to improve the conditions of their members because they have brought pressure to bear upon the employers to raise wages of a restricted number of men at a time, rather than to raise wages of all employees together.

If all the workers in a given industry are to enjoy a substantial rise in wages, without performing more work, producers must ordinarily obtain a higher price for their product than before or produce at a loss, except possibly the most capable producers in the industry who have been making large profits. Workers in any given industry might benefit substantially from such a procedure if the same rise in wages and in the price of the product did not occur in other industries. But in so far as wage increases in all industries lead to higher prices of products of all industries, the cost of living rises along with money wages, and the real wages of the workers — what they can buy with their money wages — may be little higher than before.

10. Conclusions. Roughly speaking, profits, interest, and economic rent in the United States in recent years have constituted about thirty per cent of the total national income, and wages and salaries about seventy per cent. Considering the salaried workers as merely a part of the wage-earning group, it is obvious that no remarkable increase in wages is possible for the workers as a whole through organization, legislation, or through anything, in fact, except greater production of goods per capita. If the workers were to get the total product of industry, and profit, interest, and rent were absolutely wiped out, wages would not be increased fifty per cent thereby. Even if workers could force such a general increase in wages as to wipe out profit, interest, and rent, the gain would not be wholly a net gain, assuming production to remain at the old level. Many workers, particularly in the United States, as owners of houses, in-

surance, shares of stocks in corporations, or bonds, enjoy some income in the form of profit, interest, and rent, and what they lost from this source would need to be set off against what they gained in wages. There are sound theoretical reasons for holding that profits and interest could not be wiped out without grave consequences to the productiveness of industry in the long run — profits, in part at least, being a necessary reward for business ability and assumption of risk, and interest a reward for saving without which accumulation of capital would be greatly retarded. And rent cannot be wiped out by any wage policy that would compel all employers to pay the same rate of wages for the same grade of workers, for reasons that will be clear to the reader who has perused our chapters on rent and the price of land. Only under a private or a public monopoly could rent be paid out to wage-earners.

In any country where wages and salaries already constitute seventy per cent of all income, it is probable that at the best, organization by itself alone, unaccompanied by an increase in the quantity of goods produced, could not gain for the workers in the aggregate an increase in wages of more than twenty per cent, and possibly not that much in the long run. Organization may, however, keep wages from falling, gain for the workers their proper share of the total output of industry when productivity of industry rises, as it has risen in recent years in the United States, and it may tend to bring about an increase in productivity of industry by winning a higher standard of living for the workers. On the other hand, labor organizations, if they become very powerful and pursue a policy of restriction of output, discourage investment and business enterprise, and otherwise hamper the proper management of industry, may bring about a decrease in productivity of industry. By so doing they may in the end reduce real wages — labor's slice of the industrial product pie may be a larger part of the total, but the pie will be smaller, and labor's slice will be smaller absolutely than before.

Granting that organization may maintain the level of wages substantially above the level that would prevail under individual bargaining, is this desirable? Some would hold that it is not. Laborers, they say, are spenders and wasters. Give them a dollar and they "blow it in." Otherwise they would not be mere laborers. It is better, they assert, to keep workers unorganized and weak, keep

wages down, maintain high profits, interest, and rent, and thus give the rich large incomes out of which savings may be made and capital accumulated, thereby making the nation rich and powerful and making life pleasant for the worthy and fortunate few. This brutal and pessimistic brand of social philosophy is fortunately being discarded along with other medieval notions that have done much mischief in the world. The dominant modern social philosophy is of a more humanitarian type. Life is to be made pleasant, not merely for the aristocrats, but for the people as a whole, of whom the wage-earners are the vast majority. The modern enlightened point of view is that an increase in wages and a smoothing down of the inequalities of wealth and income are highly desirable, provided they do not ultimately produce evils to offset the immediate gain. The point at issue is, then, will the organization of the workers and the increase in wages so hamper industry as to lead ultimately to a decline in productivity, to greater poverty, and to greater inequality? If the organized workers by restrictive policies reduce the total production of goods, then organization is to that extent an evil. If they force up wages and reduce the incomes of the wealthy, who now do most of the saving and accumulating of capital, and if they spend their wages all for consumers' goods, and do not save, then the capital equipment of the country will deteriorate, and this will in the end bring wages to a very low level. But organization does not necessarily restrict output, although in many cases in the past it has done so. In this respect the record of labor organizations is at least as good as that of organizations of business men. Labor organizations may — and in many cases do — increase productivity of industry. As for saving, many laborers have the desire to save and do save whenever their incomes rise to a level that makes saving a wise provision for the future rather than a penurious reduction in the standard of living of their families. On the whole, both deductive reasoning and economic history indicate that some form of labor organization is socially desirable.

EXERCISES

1. How are wages determined under competitive conditions? What is meant by the true competitive level? Why may some employers force wages below the true competitive level?

2. Is it possible for workers to raise their level of wages by means of labor organizations? Why, or why not?
3. What are the essentials of successful collective bargaining? Explain.
4. Up to the present time the trade union has been more important by far in the United States than the industrial union. On what grounds do some writers maintain that in the future the industrial union will become relatively more important?
5. Suppose that in a certain manufacturing industry 100 competing producers each employed 1000 men at $5 a day. Suppose that these manufacturers could be placed into five groups of 20 in each group, and that the manufacturers of the first group were making profits of $5000 a day each, the manufacturers of the second group, $4000; those of the third group, $3000; those of the fourth group, $2000; and those of the fifth group, $1000. Suppose that the indirect costs of each manufacturer were $1000 a day. Then suppose that the laborers organized into a strong union, demanded a 40 per cent wage increase, were prepared to hold out indefinitely on a strike unless the increase were granted, and that the employers could find no other men. What would be the probable results for everybody concerned? Suppose that the first wage increase of 40 per cent were granted, and that the workers the next year demanded another increase of $2 a day, what would be the result?

REFERENCES

I

Douglas, P. H., Hitchcock, C. N., and Atkins, W. E. *The Worker in Modern Economic Society*, chapter 18, sections 1–3 and 5–9; chapter 19, section 2; chapter 20, sections 1–3; chapter 21, section 8.
Ely. *Outlines of Economics* (1923 edition), chapter 23.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 53.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 192–203.
Seager, H. R. *Principles of Economics* (1923 edition), chapter 29.

II

Commons, J. R. *History of Labor in the United States.*
Furniss, E. S. *Labor Problems.*
Hoxie, R. F. *Trade-Unionism in the United States.*
Webb, S. and B. *Industrial Democracy.*
Wolman, L. *Growth of American Trade Unions.*

CHAPTER XXII

LABOR LEGISLATION

1. Labor conditions under unregulated competition. Business has been defined as buying to sell at a profit, or as production for profit. Whether or not a business man makes profits depends mainly on three things — his ability to buy low, his success in selling high, and his administrative capacity in making from a given number of units of producers' goods the maximum amount of finished product. His capacity to buy low is at least as important as either of the other two factors that make for success or failure, and often it is much more important. Under severely competitive conditions each competitor must strive desperately to put his product on the market as cheaply as his rivals, and there is a persistent tendency in many industries for each to try to undersell the others in order to increase sales and to reap the economies of large-scale production. Other things being equal, that business man will be able to produce most cheaply, to make the largest profits, to expand most rapidly, and, if need be, to undersell his competitors, who obtains his producers' goods on the most advantageous terms. A tremendous pressure is, therefore, exerted upon business men in competition with other business men to buy their producers' goods at the lowest possible figure.

Costs can be reduced by more effective methods of production as well as by buying producers' goods more cheaply. But business men, in striving to reduce costs in order to meet competitive prices or to increase profits, tend to follow the line of least resistance. They try to cut costs by closer bargaining. Bargaining right and left constantly with all sorts of people, they find that concessions in prices can be wrung more readily from the helpless and ignorant than from the strong and crafty. Raw materials and machinery they buy in the main from other business men as shrewd as themselves. Land and buildings they buy or rent from grasping, wide-awake, and strategically located landlords. Loans they obtain from bankers and others who drive a hard bargain. But the labor

of men, women, and children they buy from those who perform it, except as these persons are organized into unions and elect representatives to bargain for them. Here they often find a degree of helplessness and ignorance that permits them to drive a hard bargain. Here they find the weakest point in the wall of high costs that bars them from the delights of profits awaiting those who can break through. Here they concentrate their forces of argument, intimidation, hard-luck stories, persuasion, until the wall cracks and wages come tumbling down.

There are business men who would hesitate to drive hard bargains with the helpless and ignorant in order to gain profits for themselves. But labor costs are such a large part of total costs that no employer can long remain in business who pays more for labor than his competitors, unless he is more efficient or obtains more efficient workers. A strong tendency exists, therefore, for the most brutal and selfish employers in any industry to set the pace, not only for the wages paid, but for other conditions of employment which affect total costs of production, including hours of labor and conditions relating to the health and safety of the workers. How the terrific pressure of competition tends to lower the wage level and otherwise to produce unfavorable conditions of employment has already been discussed in the preceding chapter. In that chapter, too, has been discussed how workmen have tried to improve their conditions of employment — and to some extent have succeeded — through organization into unions and by collective bargaining. In that chapter it was noted, however, that labor organization succeeds best among the highly skilled workers and tends to leave the unskilled workers and the women and children in industry — the peculiarly helpless classes of workers — at the mercy of the competing employers. Organization of the stronger groups narrows the pressure of competition and makes it bear down the more sharply on the unorganized and weaker groups. For these unorganized workers the more fortunate trade-unionists are sorry, just as the fleeing travelers are sorry for the children they throw from the sled in order temporarily to stop the wolves, while they themselves speed on to safety. For these weak and unorganized workers some employers are sorry, too, as the wolves may be sorry for the children when they suck their blood and lick their bones. But business men cannot live without profits nor wolves without food.

From such unregulated competition serious evils grow. Unreasonably low wages — starvation wages — for such workers as are unable to bargain successfully with their employers often result. Women and children tend to be employed for work which they can do approximately as well as men because employers can bargain more effectively with them than with men. Hours of labor for unorganized men and for women and children become inordinately long and the ages at which children are employed shockingly low. Precautions against accidents and occupational diseases are reduced to a minimum or are absolutely lacking because such precautions increase cost of production and put the employers that take them at a disadvantage in unregulated competition. Accidents and disease kill or disable hundreds of thousands of workers annually. Industry becomes even more bloody than war. The killing and maiming being persistent throughout the working population year after year, the toll in life and blood mounts higher than the toll on the battle-fields, where the action, although sharp and spectacular, is confined to a relatively small number of combatants and is soon over.

2. **The evil of child labor.** When the law permits it, children are employed in industry in great numbers, for long hours, and at low wages. They are employed not merely for short periods, as during school vacations, but continuously as business conditions warrant — possibly throughout the year, possibly only during certain seasons, as in some agricultural occupations. They are taken from the schoolroom and from the playground at an early age and driven into fields and factories. Deprived of systematic education and compelled to labor for long hours at work for which their strength and years do not fit them, these victims of unregulated competition reach maturity physically warped and weakened, mentally dwarfed, and possibly morally perverted. Not only do they remain illiterate, but often they do not even learn a useful trade, but must pass their whole lives in blind-alley occupations, competing with children of the next generation for their bread. Exposed to the dangers of accidents from unguarded machinery, open elevator shafts, and the like, these children, more careless even than adult workingmen, are likely to suffer death or injury, or they may fall victims to occupational diseases caused by poisonous fumes or irritating dusts. Thus

their lives may be ended tragically before being fairly begun, or old age may creep upon them in early youth.

The extremes to which employers of child labor will go in the absence of legislation is well illustrated by conditions in England after the Industrial Revolution was well under way and before labor legislation curbed the right of English manufacturers to run their business as they pleased. Children were roused from sleep as early as three o'clock in the morning and forced to labor in factories, under the compulsion of blows, if need be, until long after dark. The conditions of orphans and pauper children were particularly pathetic — these being bound out to manufacturers as apprentices, herded together in crowded quarters, and driven to work, practically like slaves, but with even less precaution for their health and safety, the death of a pauper apprentice representing little or no financial loss. The conditions of the children of the poor, however, were little better than those of the paupers, since the low wages of their parents often meant such grinding poverty that factory labor for the children was merely an alternative to slow starvation.

Obviously, widespread child labor of this sort cannot be defended even on the ground that it is necessary for the industrial survival of the nation that practices it. A nation that brings up its children as illiterate and physically incapacitated slaves will in the long run fare worse in world competition than one that lives by adult labor. Temporarily child labor yields an advantage in dollars and cents, but a nation that can survive only by paying such a price is not worth saving even temporarily. Child labor on a less extensive scale, and affecting only a small per cent of the nation's children, cannot, of course, be attacked as a menace to the country's welfare. But it is just as brutal, just as shameful, and, for its particular victims, just as calamitous, as child labor on a vaster scale. To the nation that permits it, it is even more disgraceful, since the very fact that it exists on only a small scale indicates that it is unnecessary and could be dispensed with at a cost in dollars and cents that would perhaps not equal the bill for chewing gum or tobacco.

It should not be inferred from the foregoing discussion that all labor by children is to be considered an evil. On the contrary, it is probable that no labor at all for children is an evil almost as great as unregulated and excessive labor. Most children at least would

doubtless be better off if required to submit to the discipline of a moderate amount of physical labor at an early age, something like the farm boy's chores, and gradually broken into more continuous productive labor during their school vacations as they grow up — but labor in all cases fitted to their strength and years. It is just as true that Satan finds mischief for idle hands to do as that all work and no play makes Jack a dull boy.

3. **The evils of long hours and low wages.** The evil of long hours of labor for children has already been noted. But unreasonably long hours of labor for men and women must also be condemned. Certain employments of men — such as underground mining — are destructive to health if the hours of labor exceed eight hours a day. And in all industries there is a limit in hours of labor even for the strongest men beyond which the fatigue induced by labor accumulates, the hours of rest and sleep being insufficient to restore the workers from one day to the next. Excessive hours gradually undermine their health and the workers become prematurely aged, and are likely to be scrapped by the employer years before their natural working lives should have ended under normal conditions. Moreover, the workers, poisoned and weakened with fatigue, offer small resistance to disease and die years before their time. Furthermore, excessive hours of labor, such as represented, for instance, by the twelve-hour day and the seven-day week, leave the workers so little leisure that there is scant time for intellectual pursuits of any sort — not even time to read the daily paper. They spend so much time in making a living that they have no time in which to live. A twelve, fourteen, or sixteen-hour day manual worker is not a man and a citizen. He is an animated machine, by means of whose labor more fortunate persons enjoy life.

The twelve, fourteen, or sixteen-hour day is even worse for women than for men, since women are physically less capable of standing prolonged exertion than men. Moreover, the effects on women of unreasonably long hours of work make themselves felt on the succeeding generations. Overworked women are more likely to suffer nervous breakdowns than men, and fagged-out, neurasthenic women are unlikely to become mothers of strong, healthy, normal children. Their children are often handicapped in life from their very start.

The evil effects of wages too low to maintain a decent standard of living have been discussed in the preceding chapter in connection with labor organization, as has the tendency of low wages to cause the degeneration of the workers, thus setting in motion a vicious circle making the workers worth less than before and more helpless to resist further wage cuts, which the employers are likely to resort to when the inefficiency of the workers reduces their output. Long hours and low wages may thus so reduce the efficiency of the workers that longer hours and lower wages seem to the competing employers to be necessary to keep costs of production below market price. Naturally, if any considerable proportion of the working class fall victims to this vicious circle, the result is calamitous, not only to themselves, but to the nation of which they form a part. Even the employers in the long run are more likely to be impoverished than to be enriched by such degradation of the workers.

4. Industrial accidents and occupational disease. According to statistics compiled by the Prudential Life Insurance Company the number of fatal industrial accidents in the United States in 1913 was 25,000, and in 1919, 23,000; the number of injuries involving disability of more than four weeks was 700,000 in 1913, and 575,000 in 1919. To a certain extent alert workers can guard themselves against death and injury from industrial accidents, since these are often caused by sufficiently obvious dangers, such as unguarded cog wheels, flying belts, overhead cranes, and the like. But often accidents befall the workers which no degree of caution on the part of the victims can prevent. That a large proportion of industrial accidents are preventable by systematic measures in the interest of safety has been demonstrated in recent years by various industrial concerns which have made a systematic attempt to prevent them. The United States Steel Corporation alone has in the last few years saved tens of thousands of its employees from death and injury who under conditions formerly prevailing in its plants would, in the course of the day's work, have been sacrificed on the altar of cheap and careless production.

While the causes of accidents are often obvious and can be avoided by the workers, conditions that bring on occupational diseases are likely to pass unnoticed by the workers until health has been seriously impaired or untimely death has become inevitable.

Disease-producing conditions include poisonous gases, irritating dusts, acids, bacteria, compressed air, improper lighting, and extremes of humidity, none of which may be recognized as dangerous by the victim until irreparable harm has been done. When millions of workers are employed in industry and no systematic measures taken to prevent occupational diseases, the victims number many thousands each year. And what is of particular moment is this — it is cheaper under unregulated competition for the employers to let the workers suffer industrial accidents and die from occupational diseases than it is to prevent these results. It might be thought that the contrary would be true — that those employers who permitted dangerous conditions to prevail in their plants would have to pay higher wages in order to induce workmen to accept the risk involved. But experience has taught that workers underestimate the risk involved, or ignore it, or accept it as inevitable. Unless the Government enforces minimum standards of safety and health upon all employers, the more humane business men must provide for the health and safety of their employees at their own expense and thus weaken themselves in the competitive struggle with their thicker-skinned competitors.

5. **Inadequate compensation to the victims of industrial accidents and their dependents.** It is bad enough through lack of proper legislation to kill and injure needlessly hundreds of thousands of workers in the course of their employment. It makes a bad matter worse to deny to the victims decent compensation for their injuries, whether preventable or not. In the absence of suitable labor legislation not only are workmen needlessly killed, but the widowed mothers of small children are left to live as they can. Thus society may be said not only to rob the children of their father, but afterward to starve and otherwise maltreat them into the bargain. But the workman who is killed outright may be considered fortunate as compared with the victim who is disabled for life and is left to drag out a hopeless existence as a burden on his handicapped wife and children.

It is true that in the absence of labor legislation not all victims of industrial accidents went without compensation. Under the common law (in the United States and England) employers were liable for injuries suffered by their employees in the course of their em-

ployment. But damages could be obtained only through a successful lawsuit, and comparatively few workers could expect to win a lawsuit against a powerful and resourceful employer. Most accidents resulting in death or injury remained uncompensated or were paid for at ridiculously low rates, and when damages were actually awarded, the greater part of the sum collected was likely to be expended in the costs of bringing and prosecuting the suit.

Just as automobile drivers at present commonly insure against accidents, so employers liable for damages under the common law insured with casualty insurance companies. These insurance companies through their great financial power were able to maintain staffs of expert lawyers to defeat workers' claims for damages. The employer had three defenses in three principles of the common law, referred to as the fellow servant rule, the rule of contributory negligence, and the principle of the assumption of risk. According to these three principles the employer could not be held responsible for accidents to employees caused by acts of their fellow employees or by their own contributory negligence, and at any rate the employees were assumed to have accepted all the customary hazards of their occupation when they accepted employment. Behind these three defenses the shrewd lawyer of the defendant could ordinarily win his case against the mediocre lawyer such as the worker could afford to employ.

6. Early opposition to labor legislation. Such being the evils of unregulated industrial competition in the absence of labor legislation, let us note to what extent and by what kind of laws these evils have been corrected. In this book we are interested primarily with conditions in the United States, but a brief consideration of the early history of labor legislation in England will serve as a useful introduction to the discussion.

The various evils enumerated and discussed in the foregoing sections of this chapter became glaring in England soon after the Industrial Revolution was well under way, and in other countries as the factory system spread from country to country. Whoever cares to read economic history can find trustworthy accounts of conditions of employment that in their brutal callousness to human misery seem almost incredible. Misery enough — long hours of labor, poverty, disease — there had been before the Industrial

Revolution. But quite ironically the improvements in methods of production that tended enormously to increase the productivity of labor and to multiply goods available for human consumption, and that should have bettered the conditions of the workers, heaped new misery upon them. Driven from the land that they had cultivated in a small way under the domestic system and herded together in cities, the workers became dependent for a living upon employers whose terms they had to accept or starve, and many sank into a depth of misery and helplessness previously unknown. The contrast between the actual consequences to the workers and the results that might have been expected from greater productivity of industry accompanying the Industrial Revolution attracted the attention of social reformers in England even as early as the latter part of the eighteenth century, and with the opening of the nineteenth century brought a demand for labor legislation that could not be resisted.

One who is inclined to sympathize with human suffering and to do what he can to mitigate it might wonder why labor legislation, such as was early enacted in England and in other countries, should be resisted by any one. It was, however, resisted by two classes of opponents. Employers opposed it because it interfered with their rights to run their business as they pleased, which they held to be God-given, and because it threatened to reduce their profits. Certain economists and political scientists opposed it because it ran contrary to their pet doctrine of *laissez-faire*, a doctrine which will be discussed more fully in a later chapter, but which may here be described summarily by the statement that that government governs best which governs least. This theory of government, receiving strong support from, and in fact being largely based upon, Adam Smith's *Wealth of Nations* (published, 1776), was the dominant political theory in England in the latter part of the eighteenth and the early part of the nineteenth century, and it was also in the ascendancy at this time or a little later in other leading industrial countries. It held that government exists primarily to maintain law and order within a country and to protect the country from external aggression, and should confine itself as nearly as possible to performing these essential functions of government. Any departure by government from these narrow bounds, except for the

construction and maintenance of certain necessary public works, was viewed with apprehension as a menace to liberty and national prosperity.

That children were driven to work like slaves, that men and women worked such long hours that loss of sleep and recreation ruined their health and shortened their days, that wages sometimes fell below the level of decent subsistence, that thousands of workers were killed and injured annually, were evils the *laissez-faire* doctrinaires doubtless admitted, but that such conditions ought or could be corrected by government action they denied. Government regulation, they held, would only make matters worse. So they joined forces with business men and landlords selfishly opposed to any improvements in the condition of the laboring classes and fought labor legislation tooth and nail. Against this combination progress in labor legislation was difficult, and a full century was required to place on the statute books of England a fairly adequate set of laws regulating conditions of employment and preventing or mitigating the evils that naturally develop under conditions of unfettered competition. Not only did the governing classes of England and other countries oppose legislation designed to improve conditions of employment, but they opposed also as a menace to public welfare the labor organizations by means of which the workers themselves tried to improve working conditions. Laws were passed making labor unions unlawful, and it was not until 1875 that all laws against labor organization were repealed in England. Even to-day, in the United States, certain activities of labor organizations which seem to the unionists to be necessary to attain their ends, and which appear to many other persons at least as legitimate as similar activities permitted to employers, are sometimes declared unlawful by the courts. It may be said, however, that these cases usually involve acts of violence or intimidation, or at least threaten to lead to personal violence and destruction of property. These unlawful acts include such things as threats of personal injury to or actual attacks on men who refuse to join the union, or on men who without joining the union accept employment with employers whose union men have gone out on strike, and the like.

7. Development of labor legislation in England. The first Factory Act in England, that of 1802, is interesting to-day because of

the labor conditions it was found necessary to correct by law. This act applied to pauper children employed in cotton mills. The English parishes in order to reduce taxes had adopted the policy of binding out the pauper children as apprentices in cotton factories, where they were employed during their years of apprenticeship practically as slaves, under debasing and health-destroying conditions. The law of 1802 prohibited among other things the binding out for factory labor of children under *nine* years of age and restricted the hours of labor of children to *twelve* a day. Children had in fact been employed in factories at the age of seven or earlier and for more than twelve hours a day, and not only pauper children taken from the poorhouses, but other children of the working class.

By 1847 public sentiment had been so rallied to the support of factory legislation that the Ten Hours Bill became a law. Under this act the maximum working hours for all women and young persons in the textile industries became fifty-eight hours a week. Full details of English laws cannot be included here. It must suffice to note that later laws further restricted child labor, hours of labor, and night work; regulated factory conditions in the interest of health and safety; provided compensation for workers injured in the course of employment; provided for old-age pensions and sickness and invalidity insurance; and finally, provided insurance against unemployment for workers willing and able to work. All the important industrial countries of the continent of Europe have enacted a great variety of labor laws, on the whole covering much the same ground as the English laws, but differing in details. Some of the continental countries, notably Germany, took measures more promptly than England to correct the evils growing out of the Industrial Revolution.

8. Why effective labor legislation has come late in the United States. The United States has followed the examples of European countries in enacting labor legislation tardily and with halting footsteps, for two main reasons. In the first place, the evils did not early become so glaring here as in Europe. Our country until quite recently has been primarily an agricultural country, and a small proportion of our working class has been subjected to factory conditions. Moreover, laborers who became dissatisfied with factory conditions could readily escape to the farms, when land was free or

could be bought at a nominal price. Manufacturers had to offer at least decent conditions of employment and fair wages to retain their workers. Wages being higher in this country than in older, more thickly populated countries, saving was easier. Workmen, if they desired, could provide for old age, and, having something laid by for a rainy day, were not so quickly reduced to poverty in case of accident or sickness. If a poor man was unable to find factory employment there was always the possibility of making a living on the land, provided the man had the comparatively small sum of money required to buy a tract of land, a horse or mule or two, a plow, and a few other cheap farming implements, and to build a one or two-room shack. If he did not have even this much money, there was the further possibility of renting land and farming on shares, or the opportunity of finding work as a "hired hand" on a farm.

In the second place, labor legislation, even when its need has been strongly felt, has been hard to secure and to enforce in the United States by reason of our peculiar form of government, the nature of our Constitution, and the strong hold of the *laissez-faire* theory of government upon our judges. A labor law to become effective in the United States, whether it be state or federal, must be passed by the two branches of our legislative bodies — house and senate — approved by the executive, and interpreted favorably by our courts as not violating any clause of state or federal Constitution. Our federal Constitution and our early state Constitutions were drawn up during a period when the people looked upon governments as a necessary evil, and our Constitutions therefore circumscribed the power of our federal and state Governments rather narrowly. This is particularly true of the federal Constitution.

Under the Constitution the power of Congress to legislate on any subject does not extend beyond the powers expressly delegated to it, and there is no express delegation of the power to legislate on labor conditions. Such federal legislation as we have had has been based on the power of Congress to regulate interstate commerce and to tax. Unless a federal labor law can be interpreted as falling within the scope of these two powers, it will be declared unconstitutional by the courts. Moreover, the Fifth Amendment to the Constitution states that no persons shall "be deprived of life, liberty,

or property without due process of law"; so that a labor law that might otherwise be interpreted as embraced by the power to regulate commerce or the power to tax may be declared unconstitutional as depriving persons of life, liberty, or property without due process of law.

Certain provisions of the federal Constitution also limit the power of States to legislate on various matters; in particular, the Fourteenth Amendment provides that no State shall "deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of its laws." The power of state legislatures is further limited by clauses in state constitutions, so that state labor laws must be carefully drafted if they are to stand the test of constitutionality when subjected to the scrutiny of the courts. The indefinite police powers of the several States afford, however, a broad basis for labor legislation upon which state legislatures may enact any law in the interest of public health and safety, morals, or welfare. On account of the broader legal basis for state labor legislation than for national labor legislation, most of the labor laws in the United States are state laws. State labor laws include laws restricting child labor, laws limiting hours of labor for men, women, and children, regulation in respect to the health and safety of the workers, workmen's compensation laws, minimum wage laws, and laws providing for arbitration of labor disputes and for public employment bureaus.

9. Child labor laws in the United States. The nature of state laws on child labor is concisely summarized by E. S. Furniss, as follows:[1]

[1] Practically every State has some laws in regard to the work of children. Forty-six of them fix the minimum age for factory work at 14 years or higher, while only one has no minimum. Thirty States limit the working-day for children under 16 to 8 hours, while 17 States permit 9, 10, or 11 hours a day, and one has no limit. Thirty-eight States prohibit night work for children under 16; 5 more allow certain exemptions, while 4 have no prohibition at all. Twenty-six States prohibit children from working in mines and quarries, 7 more from mines only, while 15 States permit them to work in both mines and quarries. Only 10 States have state-wide laws applying to the street trades. Eighteen States have no definite educational requirement for children leaving school to go to work, and only 12 require the completion of the eighth grade. There is practically no legislation re-

[1] Furniss, *Labor Problems*, p. 189.

garding work in agriculture or domestic service. School attendance laws are often a dead letter in the rural sections, and street trade laws are almost impossible to enforce.

These state laws are so lax in their provisions and so poorly enforced that in 1910 approximately 2,000,000 children between the ages of ten and fifteen were employed in remunerative occupations in the United States. In 1920, the census showed only a little more than 1,000,000 child workers of those ages, but this number was abnormally low because the Federal Child Labor Tax Law, to be noted below, was then in force, and because the census was taken in January and therefore failed to include many children that in other months would have been engaged in agricultural labor. It should be noted that a majority of child workers in this country are engaged in agricultural labor, 647,000 in 1920 having been employed in agriculture as against 185,000 in manufacture, 80,000 in clerical occupations, and 63,000 in trade.

One great difficulty with state child labor laws, as with any other labor laws that raise the standard of conditions of employment, is that those States which set up the highest standards and enforce their laws the most rigorously hamper their business men in interstate competition for trade. In most industries in the United States competition has become nation-wide on account of our cheap and efficient means of transportation. Anything, therefore, which increases costs of production of producers in one State while leaving costs the same in other States puts the producers in that State at a disadvantage. In the long run the State that maintains and enforces good child labor laws may be expected to reap the benefits of a better class of citizens and more efficient workers, but business men are often more directly interested in present costs and present competition than in long-run results.

Give a cotton spinner in one State a plentiful supply of children from eight years up in age, and the right to work them twelve hours or more a day, and his costs will be materially lower than those of a spinner in another State who can employ no children under the age of fourteen, and can employ children between the ages of fourteen and eighteen only eight hours a day. Handicap the second spinner further with other restrictive laws not enforced against his competitor, such as laws regulating hours of labor for women, conditions

of health and safety, workmen's compensation, and the like, and unless he is a more able manager than his competitor in the "lawless" State, he is likely to fail in interstate competition. States which are backward in restricting child labor may refuse to adopt restrictive laws for the very reason that they desire to retain the advantage that accrues to their manufacturers from the absence of child labor laws. They deliberately prefer financially attractive to socially desirable conditions.

It follows that social reformers, intent upon bringing an end to what they consider shameful conditions, urge federal legislation which will apply to the backward States willy-nilly. As a result of their activities two federal laws have been enacted designed to restrict child labor throughout the nation, but neither has stood the test of constitutionality. The first, passed by Congress in 1916, was based upon the power of Congress to regulate interstate commerce, and debarred from interstate commerce goods produced in factories which employed children under fourteen years of age, or which employed children between fourteen and sixteen years of age more than eight hours a day, or at night. This law having been declared unconstitutional by the United States Supreme Court, Congress in 1919 attempted to prohibit child labor under the taxing power by levying a tax of ten per cent on the income of any manufacturer who employed child labor under the conditions forbidden in the Act of 1916. When this law in turn was declared unconstitutional by the Supreme Court, the advocates of federal child labor laws began a campaign for a proposed Twentieth Amendment to the Constitution giving Congress the power to "limit, regulate, and prohibit the labor of persons under eighteen years of age." This Amendment was vigorously, and one might add viciously, attacked by opponents of federal legislation on two main grounds: first, that it represented a dangerous encroachment by the Federal Government upon States' rights; and, second, and somewhat hysterically, that it was a bolshevistic measure designed to act as an entering wedge to deprive parents of control over their children and to make children the wards of a federal bureaucracy. The fact that the upper age limit of the measure was eighteen years rather than sixteen years made the opposition to it all the stronger. This Amendment has failed to secure the ratification of the requisite number of States, so that as yet we have no federal regulation of child labor.

The point of view of those who oppose a federal child labor law as a dangerous extension of federal power and an encroachment upon the rights of States can be appreciated. But one must also consider this point: Shall a few backward States, which insist upon living on the product of child labor, deny to the majority of the States, which are opposed to child labor, the right to limit, regulate, and prohibit the labor of children? Are the rights of States which refuse to legislate in the interest of their children more sacred than the rights of States that are more progressive and humanitarian in spirit? Are not the friends of States' rights in a case like this embracing the shadow and rejecting the substance of States' rights? It seems to the writer that unless all the States can in the near future be shamed into desisting from the exploitation of child labor, it will be highly desirable to press the matter of federal regulation.

10. **Hours of labor.** Thirty States limit the working day for children under sixteen to eight hours, seventeen permit nine, ten, or eleven hours, and one has no limit.[1] These laws are, however, not all strictly enforced. Nearly all our States place some limitations upon the working hours of women, but here again there is lack of uniformity, some States limiting hours of labor to eight per day, and others placing the maximum at twelve. Fewer States limit hours of labor for men, it being generally held that men are able to stand prolonged exertion better than women and children. But some States have limited hours of labor for men in certain selected occupations which are considered unusually dangerous to health and safety. An eight-hour workday has, for instance, been provided for men in underground work in mines in a number of States, more than eight hours of work in such occupations being held to be detrimental to health. The Federal Government has limited the hours of labor of men engaged in operating trains, such as engineers, firemen, and conductors, and of those directing train movements, such as train dispatchers and telegraphers. This regulation is justified not only in the interest of the health and safety of the workers concerned, but also in the interest of the safety of railroad passengers whose lives are endangered when railway workers are overcome with fatigue and make mistakes.

Laws regulating hours of labor for men and women have at va-

[1] Furniss, *Labor Problems*, p. 189.

rious times been attacked and declared unconstitutional on the grounds that they deprive persons of property without due process of law, abrogate freedom of contract, or deny to citizens the equal protection of the laws. When upheld by the courts state laws limiting hours of labor for adults have been supported by the police power — as justified in the interest of public health, morals, and safety. Hours of labor of railway workers naturally come within the power of the National Government to regulate interstate commerce.

Laws which limit the hours of labor of men and women in some States, but not in others, tend to handicap the business men in the former States, just as do child labor laws under similar circumstances. Similar considerations apply to all other kinds of labor legislation — laws which are considered desirable by the majority of the people in any given State may be defeated through the fear of hurting business so long as similar laws are not enforced in other States. There is here a strong argument in favor of uniformity of labor laws in the various States, and in the absence of certain minimum standards of labor conditions in backward States, an argument for federal regulation in those States which refuse to regulate themselves in accordance with commonly accepted standards of humanity.

11. Laws in the interest of safety and health. Massachusetts in 1877 passed the first American law requiring safeguards in factories. This early law provided for the guarding of belting, shafting, and gearing, prohibited the cleaning of moving machinery, required elevators and hoistways to be protected, and called for sufficient means of egress in case of fire.[1] Similar provisions have since been incorporated in the laws of practically all our States, and in some cases elaborated in great detail. But not all States enforce these laws rigorously, and it is still a common news item to read of men being torn to pieces or crushed to death by unguarded machinery, or of women and girls being burned to death in factories having inadequate fire escapes. Work in mines is even more dangerous than in factories if there are no adequate safeguards. In coal mines particularly workers are still being killed by the dozens and scores, or even by hundreds, in single coal-dust explosions, which are readily

[1] Commons and Andrews, *Principles of Labor Legislation*, p. 357.

preventable by the process called "rock-dusting." Less spectacular is the regular recurrence of accidents resulting in the death or serious injury of individual miners. In the local papers in a coal-mining region one can read almost daily of a miner's being crushed to death by a fall of slate or rock, or being caught between a mine car and a ledge of rock, or the like. These accidents are often the result of lax enforcement of safety regulations.

Unless the various States succeed in bringing about some degree of uniformity in their laws in the interest of health and safety and in enforcing these laws with a reasonable degree of care, federal regulation should be resorted to. The Federal Government has already legislated in the interest of health and safety in some industries. Railroads are compelled by federal law to use automatic couplers on their cars, and to use in locomotives ashpans which can be emptied and cleaned without the necessity of an employee crawling under the locomotive. These laws have saved great numbers of railway employees from death or serious injury. The Federal Government brought an end to the manufacture of poisonous phosphorus matches by levying a special tax upon them that made their production unprofitable, and thus saved many match workers from falling victims to the terrible disease known as "phossy jaw." Such federal legislation, of course, is open to the charge of encroaching upon States' rights, but the question may be raised: Do the States have the right to slaughter needlessly hundreds or thousands of American citizens merely through negligence or through the desire to gain financial advantages in competitive enterprise?

12. Workmen's compensation laws. There are bound to be many accidents resulting in death or serious injury to workers even when adequate laws in the interest of safety are rigorously enforced, and the victims of these accidents should be compensated. Under the common law, as has been explained, workers or their dependents could sue employers for damages, but had small chance of winning their case. Compensation under such circumstances was uncertain, generally inadequate, and often long deferred. In the interest of simple justice, then, it is desirable to provide by law for adequate compensation for victims of industrial accidents to be paid with certainty and dispatch. This is desirable whatever be the nature of the laws relating to safety and health.

In the early years of the present century economists and sociologists pointed out so convincingly the desirability of workmen's compensation laws modeled after those in force in various European countries, including England and Germany, that our States enacted workmen's compensation laws — one might say, almost in a body, forty-five States and Territories putting into effect such laws in the period from 1909 to 1922. The Federal Government also enacted a law providing compensation for workers under its jurisdiction. These laws have been upheld by the courts as not being contrary to the federal and state Constitutions.

Under the various state workmen's compensation laws a worker seriously injured in the course of his employment receives compensation as a matter of course, and without the formality of a suit, in accordance with the severity of his injury. If incapacitated for life by the injury, he draws a pension sufficient to maintain himself decently, if not in comfort, and if he is killed, his widow or children receive substantial compensation. These laws do not, of course, in most cases fully compensate the victims for even the financial losses they suffer from the injury, but they do save the workers a tremendous amount of hardship and take at least a part of the burden of industrial accidents from the shoulders of those least able to bear it and place it squarely where it belongs — upon the industry concerned and the public.

When wisely drawn and applied, workmen's compensation laws not only provide compensation for injuries but tend to reduce the number of accidents by making them costly to the employer. Employers must either maintain a fund of their own out of which to pay compensation or insure in a mutual insurance association of employers, a commercial insurance company, or a state insurance fund. When employers insure instead of bearing their own risk, the rates they must pay depend upon their past record in respect to accidents — the employer having a high accident rate having a high insurance rate. It pays, therefore, to reduce accidents to a minimum. This is one reason why industrial accidents have tended to grow less in the United States in recent years, despite the fact that the total number of persons employed in dangerous occupations has increased. It is an interesting commentary upon business conditions that men will take precautions to save dollars that they will

not take to save lives. Yet, as has been pointed out, this is a natural result of business competition.

13. **Minimum wage laws.** Minimum wage laws represent an effort on the part of governments to prevent competition among employers from forcing wages below a certain level — below the level of decent subsistence, or possibly below the level that will permit the worker concerned to live in comfort. Minimum wage laws have been most widely applied in Australia and New Zealand, being there made applicable to men as well as to women and children, and representing something more than a mere attempt to keep wages above the level of decent subsistence. They have also been tried out on a lesser scale in England, France, the United States, and other countries. In our own country they have applied only to the wages of women and children, and the minimum has been set low, yet somewhat higher than the workers concerned customarily would receive in the absence of legislation. The aim seems to have been to level wages upward to the amount that the more generous employers in the industry paid the given class of workers, rather than to raise the level for the industry as a whole.

Whether or not wages can be raised by law above the competitive level involves the same sort of reasoning that applies in considering the possibility of raising wages by labor organizations. Obviously some increase in wages for certain classes of workers can readily be secured. Some employers may be paying certain workers weak in bargaining power, such as women and children, less than they could afford to pay them rather than go without their services. If the law fixes a minimum above the amount they are paying, but below the amount that represents the most they can afford to pay rather than discharge their workers, they retain their employees and pay the legal minimum. Again, the wages of all workers of a certain class may have been forced very low through competition among producers in the sale of the product of those workers — the hardest bargainers among the employers taking the initiative in forcing down wages and cutting prices and forcing other employers to follow suit. A minimum wage law in such cases compels all employers to raise wages, and all can afford to do so if they can pass the increase on to the public in the form of higher prices for their product. This they may be able to do if the wages of the workers concerned repre-

sent a relatively small part of total costs, or if the demand for their product is inelastic, so that an increase in price will not markedly reduce total sales. There is also a possibility that higher wages paid to workers suffering from malnutrition for lack of a living wage may so increase their efficiency as to make them worth more to employers, so that the higher wage may not increase labor cost per unit of output. The burden of the increase in wages may, then, be borne by employers, or by the public in the form of higher prices, or it may be absorbed through the greater efficiency of the workers benefited.

But just as there are limits above which wages cannot be forced by labor organizations, so there are limits beyond which they cannot be raised by law. If wages of any group of workers are fixed so high by law that some employers prefer going without their services to paying the minimum wage, some of the group will be thrown out of work and will be worse off than before. It may, for instance, be possible to compel department stores to raise the wages of girl clerks from $5 to $7 a week, either because they have been making large profits from the $5 clerks, or because the enforcement of the higher minimum upon all competitors permits the stores to charge somewhat higher prices, or because the girls when raised to $7 do better work. Beyond a certain point, however, the stores cannot go and retain all their clerks, whether it be $8, $9, or $10, or some higher figure, because above a certain level of wages efficiency will not increase, above a certain level of costs profits cannot be made, and above a certain level of prices the goods cannot be sold.

It is even more difficult to raise wages by law for the whole working class than to raise the wages of small selected groups. The reasoning need not be elaborated here. The law can do little more, if any more, to raise wages, than can labor organizations, and will encounter similar difficulties in a wage-raising program.[1] In short, increases in wages must come out of profits, interest, or rent, or be borne by the public in higher commodity prices, unless they can be made to pay for themselves by increased efficiency of the workers. But higher prices mean higher cost of living, and thus the increase must be paid for mainly by the workers themselves, who constitute the major part of the public. If the increase is great enough to

[1] See Ch. XXI.

absorb all profit, interest, and rent, prices remaining the same, it cannot raise the level of wages more than about fifty per cent. With wages representing the only share in the distribution of the product of industry, higher prices for the product could be paid only out of wages, since no other incomes would remain. Boosting money wages would, after that point were reached, not bring any increase in real wages. But for reasons already given elsewhere, it would be impossible to absorb profits, interest, and rent in the payroll, so that the maximum increase in wages for all workers by law would fall much short of fifty per cent. Any attempt to force wages up by law to a point that would absorb even a considerable part of profits, interest, and rent would so disorganize production under our present industrial organization as to do the workers more harm than good. Real wages would actually fall.

It is possible that minimum wage laws rigorously enforced at a level slightly above the existing competitive level would increase productivity of industry by driving the poorest class of business men out of business and by increasing the efficiency of the workers. But there is no assurance that such would be the case. Workers assured of a mimimum wage by law might be more inclined to loaf on the job than at present, and be inclined also to rear large families more recklessly than before, so that real wages would tend to fall in the end by reason of a decline in the per capita production of goods and a greater relative abundance of labor.

We may conclude from the foregoing that minimum wage laws as an expedient for greatly improving the conditions of the wage-earners cannot be highly recommended. Except in certain selected cases they are likely to do more harm than good. If it ever seems necessary and desirable to divert into the payroll the incomes from profits, interest, and rent, it would seem preferable to adopt socialism by the most direct means — confiscation by the state of all producers' goods or means of production. That would at least be a more workable scheme than to try to operate private industry without its mainspring — profits. Under state socialism profits are not necessary to the successful operation of industry. On the subject of socialism more will be said in our chapter on the Functions of Government.

Turning now from the theory of minimum wage laws to their

practical application in the United States, we may note that thirteen States and the District of Columbia had passed minimum wage laws by 1920 — these laws applying only to wages of women and children. These laws seemed to have become established as constitutional, after being tested in the courts, as being properly based on the police power of the States. But two decisions of the Supreme Court in 1923 and 1925 nullified the minimum wage laws respectively of the District of Columbia and of Arizona, in so far as their provisions applied to adult women. By implication these decisions nullify also all other minimum wage laws in the United States, and it appears from this that minimum wage legislation is practically to become nonexistent in this country, except through the process of a minimum wage amendment to the Constitution. This seems unfortunate, since in the limited and moderate way these laws were applied they appear to have been in the interest of public welfare.

We have left, however, other practicable — and possibly better — methods of preventing the wages of women from sinking below decent levels. These include pressure of public opinion to shame employers into paying at least living wages to all employees, education and training for workers who are worth little to make them worth more, and organization of women into trade or industrial unions so that their bargaining power may be increased.

14. **Arbitration laws.** When workers in various trades or industries are organized into unions and employers in those industries are organized into employers' associations, conditions of employment may be settled for considerable periods of time through trade agreements, drawn up by the representatives of the employers' association concerned and the representatives of the unions of the workers concerned; for example, the trade agreements in the coal-mining industry or the clothing industry in the United States. A union can, of course, make similar agreements with individual employers who prefer acting for themselves to acting through an employers' association. Such agreements specify in detail wage rates, hours of labor, and other conditions of employment, and may provide methods of settling disputes that arise over the interpretation of the various terms of the agreements. But there is always danger that the unions and the employers may be unable to agree on the

terms of their bargain, or may disagree in the interpretation of an agreement drawn up, and that the dispute between them will lead to a strike or a lockout. A strike is a concerted withdrawal from work by the employees; a lockout, a closing-down of his plant by an employer when his employees refuse to accept his terms.

Since strikes and lockouts not only cause serious financial losses to the parties directly concerned, but often lead to riots and bloodshed and inconvenience to the public at large, many governments have enacted laws providing for conciliation, mediation, and arbitration in labor disputes. In the United States most of the States have established permanent boards of mediation or conciliation and arbitration. As the terms "conciliation" and "mediation" are commonly used, they are more or less interchangeable and imply the bringing together of the parties to the dispute by some outsider to patch up their differences. If the dispute is thus settled, the mediation is considered successful. "Arbitration" implies that the parties to the dispute agree to abide by the decision of one or more outsiders who base their decision on the question in dispute upon whatever facts are presented by the disputants and whatever additional facts they can discover from other sources. Arbitration may be either voluntary or compulsory; that is to say, the disputants may have the liberty either to agree to arbitration or to refuse to arbitrate, or they may be compelled by law to accept arbitration by a legally constituted board of arbitrators. Our state boards of mediation and arbitration have no compulsory powers. When they learn of a dispute they may offer their services as mediators or arbitrators. As such they can cut many disputes short, usually by effecting some sort of compromise, but they can by no means prevent strikes and lockouts from developing when both parties to the dispute take a firm stand in defense of their own interests.

Since strikes and lockouts are bound to occur when arbitration is left to voluntary boards, whether private or public, many contend that compulsory state arbitration is greatly to be desired — state boards of arbitration to be given power to make and enforce awards in labor disputes similar to the power of courts to make and enforce decisions in disputes over property. Compulsory arbitration has been pretty thoroughly tried out in New Zealand and Australia, having been operating in the former country ever since 1894, and

almost as long in Australia. In New Zealand strikes and lockouts are illegal, and facts concerning labor disputes must be brought before the court of arbitration, each award holds for three years, unless superseded by a later award of the court, and violation of awards is punishable by fine. For ten or twelve years the law seemed to yield splendid results, and New Zealand became known as the land without strikes. But during this early period the natural trend of wages was upward because of the rapid progress of industrial development, and the decisions of the arbitration court were regularly in favor of the workers, giving them higher wages and shorter hours. This fact, together with the fact that the system of compulsory arbitration legally recognized the unions and to some extent the closed shop, made the workers well satisfied with the situation. Since 1906, however, strikes have again appeared in the land, because the awards of the court, being less favorable to the workers, have left them discontented and have caused them to rebel against the unfavorable decisions. Compulsory arbitration has, therefore, not proved thoroughly satisfactory in New Zealand. In Australia the results have been similar.

One aspect of compulsory arbitration that is often left out of account by its advocates is that it leads to fixing wages by court decrees. If wages are fixed too low, the workers will rebel against the system. If they are fixed too high, they may so encroach upon profits as seriously to hamper business development. Whether any court has the ability to strike the happy medium which gives the workers all that the industry can afford to pay and no more is a question that only the optimist on compulsory arbitration will answer in the affirmative. Since compulsory arbitration represents a method of fixing minimum or maximum wages through court decisions, it is not likely soon to be widely adopted. Outside of New Zealand and Australia, compulsory arbitration has made small headway. The only example of compulsory arbitration laws that we have had in the United States is the Kansas law of 1920 which provided a court of industrial relations, having power to fix wages, hours of labor and other working conditions in selected industries, and to prevent strikes and lockouts. Its awards were to be binding under penalty of fines or imprisonment for violations. The compulsory arbitration features of this law were, however, declared

unconstitutional by the Supreme Court in 1925, and the court itself was abolished by the state legislature.

15. **The Watson-Parker Bill for adjustment of railroad labor disputes.** Railway labor disputes in the United States are of particular importance because of the paralyzing effect of a railroad strike on American industry. But even in this industry we have not resorted to compulsory arbitration in the full significance of the term, although Congress has enacted several laws providing special governmental machinery for adjusting railway labor disputes with the purpose of preventing, if possible, disastrous railway strikes. The latest of these acts, the Watson-Parker Bill of 1926, supersedes the labor provisions of the Transportation Act of 1920, which set up the Railroad Labor Board.

The Watson-Parker Bill does not provide for compulsory arbitration, but merely suggests to the railroads and their employees a number of methods by means of which they may settle their disputes. First, they are notified by this Act that it is their duty to settle in conference if possible all disputes over conditions of employment. If this fails, they are to create boards of adjustment by agreement between any railroad or group of railroads or the railroads as a whole and their employees, the boards of adjustment to consist of an equal number of representatives of the railroads and of the employees respectively. Decisions of these adjustment boards on disputes submitted to them shall be binding on both parties. To take care of disputes not settled in conference between the parties directly concerned, or by boards of adjustment, the law establishes a federal Board of Mediation consisting of five members appointed by the President. This Board of Mediation may proffer its services, or parties to the dispute may call upon it for mediation. If mediation fails, the Board of Mediation may then endeavor to induce the parties to submit their dispute to arbitration before a board of arbitration chosen in any of several ways which need not be detailed here. If both parties agree to arbitrate, the award of the board is binding on both. If they refuse to arbitrate and the dispute is not settled in some other way and threatens seriously to interrupt transportation service, the President may create an Emergency Board to investigate and report upon the controversy. In all this there is no hint of compulsion beyond the pressure of public

opinion that may be brought to bear upon the party responsible for the successive failures of the joint conference, the adjustment board, the Board of Mediation, and the Board of Arbitration, if this responsibility is fixed by the President's Emergency Board of investigation.

16. Unemployment. In highly industrialized countries great numbers of workers often find themselves unemployed, although able and willing to work. The main causes of unemployment are seasonal variations in business, fluctuations in business activity during the various phases of the business cycle, and changes in the relative importance of various industries as a result of inventions and the growth of new industries. The coal industry, the ice industry, and the grain-growing industry, for example, are subject to sharp seasonal changes in the number of men they employ. Workers dependent upon any one of these industries alone cannot find employment throughout the year. The woolen cloth industry has in late years suffered from the growth of new industries and new inventions which have tended to reduce the demand for its products. The rise of the rayon, or artificial silk, industry has caused many persons to change from woolen clothing to silk, or rayon. The widespread use of modern heating equipment in homes and offices has cut down the need for woolen clothing, as has also the growing tendency of people to ride to work in closed motor cars or to go South for the winter. The fluctuations in business during the various phases of the business cycles are discussed in another chapter, and it will suffice here to state that during the recurrent periods of business depressions in advanced industrial countries millions of workmen are left temporarily without work, the number out of work in the United States in the depression of 1921 having been estimated at about 5,000,000, or about one eighth of the entire working population. This period of unemployment for many workers may endure for months or even a year or more.

The ever-present problem of unemployment has led to legislation for mitigating or preventing the evils of unemployment. Public employment bureaus have been established at which employers needing additional hands and workers out of work may register and make their wants known. These bureaus are useful in helping a worker who has lost his position to find another with the least pos-

sible cost or delay, provided there are plenty of positions offered of the kind the unemployed workmen are able to fill. But when millions of workers are thrown out of employment during a business depression, there are not, of course, positions enough to go round, and the employment bureaus are helpless. Moreover, when workers are thrown out of work in the slack season of their industry, they find difficulty in fitting into another industry in which positions may be available. Something more than efficient employment bureaus are required to meet the difficulty.

Some countries have tried to meet the difficulty by unemployment insurance, which provides workers unemployed through no fault of their own with small weekly doles on which they may manage to tide over until they do find work. In the United States we have not adopted such unemployment insurance, but our trade unions sometimes carry such insurance for their members. At the best, unemployment insurance is an uneconomical method of coping with the problem of unemployment, since it permits idle persons to live on the incomes of others when they ought to be employed instead. At the worst, it encourages idleness, since there are many persons who prefer being idle, let us say at $5 a week, to working at $10.

The obviously desirable remedy for unemployment is to provide every one with work who desires it. Manufacturers who produce articles subject to seasonal demand should undertake to produce other articles demanded at other seasons and thus keep their hands more steadily employed. If they cannot find the proper combination, they can, with the coöperation of their employees and other producers in other industries, find outside employment for their hands in the slack season. The Dennison Manufacturing Company has successfully applied both these expedients. The workmen's part in this program consists in being willing to prepare themselves to work at more than one trade or task, so that they can systematically shift from one job to the other in accordance with the seasonal demands.

The great fluctuations in employment that accompany the business cycle in its gyrations, like the business cycle itself, are in great part preventable, as explained elsewhere in this book. They result from business and political incompetence which ought not much

longer to be tolerated in this country. Some ups and downs of business, however, are likely to remain even if intelligent effort is directed toward leveling off the mountains and the valleys of business booms and depressions. Here a more intelligent policy of constructing public improvements would help to solve the problem of unemployment. If the federal, state, and municipal governments planned ahead in an intelligent way and kept budgets, they could time their expenditures in such a way as to spend more in periods of depression and less in periods of boom than they do at present, and thus help considerably in taking the kinks out of business. In short, the remedy for unemployment is employment, and it is an unflattering commentary upon modern industrial states that millions of men cannot find anything to do, while they and other millions lack even the necessaries of life. There is no more glaring example in modern life of the lack of intelligent effort applied to a highly important practical problem.

EXERCISES

1. Explain why unregulated business competition tends to bring about child labor, long hours of labor, wages below the level of decent subsistence in some industries, industrial accidents, and occupational diseases.
2. Explain why, in the absence of workmen's compensation laws, workers injured in the course of employment rarely received adequate compensation for their injuries.
3. Explain the strong opposition to humanitarian labor legislation in the United States and England, in the nineteenth century.
4. Explain why most of our labor legislation has been state legislation rather than federal legislation.
5. Explain how one State may hamper other States in regulating conditions of labor.
6. Is it true that compulsory state arbitration of wage controversies tends to lead to state socialism? Why, or why not?
7. Is it possible to raise real wages by law? If so, how much may wages be raised? Give reasons for your answers.

REFERENCES

I

Blum, S. *Labor Economics*, chapters 2–4.
Cheyney, E. P. *Industrial and Social History of England* (1920 edition), chapter 9, sections 72–75.
Douglas, Hitchcock, and Atkins. *The Worker in Modern Economic Society*, chapter 27.
Ely, R. T. *Outlines of Economics* (1923 edition), chapter 24.
Marshall, L. C. *Readings in Industrial Society*, sections 212–27.
Seager, H. R. *Principles of Economics*, chapter 30.

II

Commons, J. R., and Andrews, J. B. *Principles of Labor Legislation.*
Frankfurter, F., and Goldmark, J. *The Case for the Shorter Work Day.*
Furniss, E. S. *Labor Problems.*

CHAPTER XXIII

INTEREST, THE PRICE OF LOANS

1. Interest assumed to be a cost of production. In our discussion of costs, price, and profits, we have included, in addition to the prices paid for the various classes of producers' goods, such as man-made materials and supplies, land, and labor, a cost item called interest. We have assumed that business men must reckon as a cost of production, not only interest paid on borrowed money, but a fair rate of return on money of their own invested in business, since, if they had not tied up their own money in their own business, they might have received interest on it by lending it to others. Up to the present chapter we have not attempted to explain the nature of interest, nor why business men must pay interest on borrowed money. Here we take up this perplexing subject, which probably causes more mental confusion than any other problem in economics.

2. Interest defined as the price of loans, or premium on present goods in terms of future goods. Interest may be defined as the price of loans, or as the premium paid on present goods in terms of future goods. It is a fact readily ascertained and easily understood that most people would rather have a dollar to spend to-day for a consumers' good than a dollar to spend a year from now for the same good. If one should be inclined to doubt this, let him say successively to half a dozen boys picked out at random on the street, "I am going to give you a dollar to spend for candy. Will you take it now, or would you rather wait until a year from now?" As a statistical demonstration the result would doubtless be perfect — one hundred per cent of the boys would take it now. If we will only hold fast to this one central idea, that people prefer goods to-day to goods a year later, or, more briefly, that they prefer present goods to future goods, we shall have less trouble in following through the chain of reasoning involved in an explanation of why interest is paid and what determines the rate.

3. Conditions under which no interest would be paid. Although it is true that most people prefer present goods to future goods, it is possible for some people to have so many goods that they would

prefer to have only part of them available in the present and the rest of them available in the future. For example, if a man had all the clothes he wanted for a year, and somebody offered to give him more, either at once or a year later, he might prefer to take them a year later. If it should be true that the world were so well supplied with goods of all kinds that part of the people had as many more goods than they wanted at present as the rest had less than they wanted at present, there would probably be little or no borrowing at interest. There would be no regular premium on present goods in terms of future goods. There would be borrowing and lending, but those who had more than they wanted at present would be as eager to lend as others would be to borrow, provided only that they were sure of getting paid back in the future, and that the goods they had were at all perishable in nature, as wheat, wool, potatoes, houses. If the supply of perishable present goods were very large, let us say the supply of potatoes, for example, then lenders might be so eager to lend that if necessary they would pay a premium for future goods in terms of present goods — they would offer to give, perhaps, two bushels of potatoes to-day for one bushel a year later. Even if the oversupply of present goods were quite durable, lenders might still be willing to pay a premium to borrowers in order to save themselves the trouble of taking care of the goods for the time being. But it happens that goods are so scarce that the deficiency of those who have less than they want in the present is greater than the excess of those who have more, and the lenders are therefore in a position to demand a premium. There are not enough loans of goods to go round. In their eagerness to get such loans the borrowers offer to pay back more than they borrow, and those who offer the greatest premium naturally get the goods.

4. Money has become a medium of lending as well as a medium of exchange. If our trading were still carried on without the use of money, borrowing and lending would be in the form of goods, just as housewives sometimes still borrow cups of sugar or loaves of bread from one another in times of temporary emergency. Jones, finding his larder empty and himself and his family suffering from hunger, and with no other means of avoiding starvation, would approach Smith, who had more wheat than he needed for a year, for a loan of twenty-five bushels of wheat, offering, perhaps, to pay back

at the end of the year, out of his own next crop, thirty bushels. The premium in this case would be five bushels, or twenty per cent. Such a loan would be a good thing for both. It would net Smith an extra five bushels of wheat and keep Jones and his family from starvation. Such borrowing and repaying in kind is analogous to trade by barter, with this difference, that Jones, instead of trading, let us say, wool for wheat, trades wheat in the future for wheat in the present.

But just as money exchange has supplanted for the most part trade by barter, so have loans of money supplanted for the most part loans of commodities. When Jones to-day lacks food for his family and the money with which to buy it, he borrows, not food, but money, and with the borrowed money buys food. When Smith has more wheat than he needs to provide for his own family, he sells it and lends the money to others if he has no other use for it. If he lends twenty-five dollars and receives back thirty dollars at the end of a year, he receives as interest five dollars, or twenty per cent of the amount of the loan.

Incidentally we may remark that this use of money as a medium of making loans leads to some serious fallacies and mistaken public policies in respect to money. People tend to lose sight of the fact that what is really borrowed and lent is in the last analysis present goods, and not merely money, and erroneously conclude that by increasing the amount of money in a country borrowing may be made easier. It requires no great brain power, however, to comprehend that wheat and potatoes and suits of clothes are not produced on government printing presses turning out paper money. The amount of money in a country beyond a certain minimum amount necessary to carry on trade, has nothing to do with the quantity of goods available for lending to the needy. This matter will be discussed more in detail when we take up the subject of money.

5. Why some people are savers and lenders and others borrowers and spenders. Let us take up more in detail now the reasons why people borrow and lend and the question of what determines the rate of interest. Borrowing is closely related to spending. People who spend freely are likely to spend more than their money income and make up the difference between earnings and spendings by borrowing. Likewise lending is closely related to saving. People

who refrain from spending all their money income may have money to lend. Consider some of the characteristics of people that make some of them spenders and borrowers and others savers and lenders. People differ, to follow Irving Fisher's analysis, in foresight, self-control, habit, expectation of life, and love for posterity. All these characteristics affect the relative valuation they put upon present goods and future goods. All people, of course, must have some present goods if they are to live, and every normal person would be willing to offer a huge premium in future goods for enough present goods to sustain life if he could get the present goods in no other way, and perhaps a considerable premium in future goods for enough more present goods to maintain health and a reasonable degree of comfort for himself and those dependent upon him. It is only after the more pressing wants have been satisfied that differences in the characteristics of people affect greatly their relative valuations of present and future goods.

6. Lack of foresight. People lacking in foresight, who cannot visualize their future needs, are not likely to save any part of their income unless the income is enormous. They buy everything they want to-day, paying no heed to the morrow. What people most commonly fail to foresee, however, is not their future needs, but their limited capacity in the future to satisfy those needs. They are not sufficiently pessimistic about the size of their future income. They seem to expect some miracle to happen — something vague and mysterious that will put them on easy street. It appears to them foolish to deny themselves any present gratification in order to save a few paltry dollars for a future that will bring dollars enough of its own and some to spare. For such persons a dollar earned is two dollars spent. They borrow and beg and buy on the installment plan. They draw on to-morrow's earnings to gratify their whims and fancies of to-day.

7. Self-control and habit. But even if a man is blessed with the foresight that enables him to form a fairly correct estimate of his probable future needs and income, he may be lacking in the self-control that enables him to forego buying whatever his fancy suggests. Like the toper who had sworn off, but could not pass a saloon without stopping to take a drink, such a person cannot pass a store without stopping to shop. He eats, drinks, and is merry, except when he bitterly thinks of the morrow.

Habit should perhaps be coupled here with self-control. One who has formed expensive habits — who has become used to lavish expenditure — will find it harder to save than others. His self-control must be greater if he is to live within his income. Saving comes hardest to sons and daughters of rich parents who through financial reverses are compelled to live upon what they earn.

8. Expectation of life and love of posterity. Expectation of life and love of posterity may be considered together. Both act as an incentive to a man to put something by for the future. A man with children or other young dependents for whom he cares will save both for their future and for his own. If he knew that he could live only one year longer, the knowledge would probably have the effect of making him save more carefully rather than spend more freely. A man without dependents for whom he cares will save more carefully if he expects to live long than if he expects to die in a short time. In communities where life is uncertain and domestic ties are lacking, money is spent in reckless fashion, as was illustrated in our Western mining camps in early days.

9. Ambition, ingrained thrift, love of accumulation, large incomes, public spirit. To these five characteristics of men just discussed we must add some other factors that influence the attitude of men toward saving and spending. Some men save because they are ambitious for power and social position. Wealth gives men power over other men — in business, in politics, even in religion. And wealth, although it does not alone give one a high position in society, adds tremendously to one's chances of achieving such a position. Without a moderate fortune a man can hardly hope to hobnob long with the four hundred, even though his manners be perfect and blue blood run in his veins, but with an astonishing number of millions one manages to gloss over some elements of crudeness and to hide a lack of blue-bloodedness which the élite would detect at once in any one but a nabob. The doors of the four hundred are lightly barred against the man with the four hundred millions. In the knowledge of these facts some men save to lay the foundation of their future greatness.

Some men save from mere habit. Saving begun for some definite purpose becomes ingrained in their nature and yields a satisfaction in itself. They feel uneasy at spending more than fifty cents for a

meal because they have become accustomed to spend only that much. They wear shabby clothes because they get more satisfaction from doing without a new suit than they would get from wearing one. Some men save for the closely related reason that they want to see their savings grow and to feel the joy of possession. They may be misers hoarding gold in their cellars and chuckling over it in secret, or they may be capitalists figuratively hugging to their bosoms their stocks and bonds and gloating over their ownership of railroads, factories, and mines. Some men save in the painless way of those whose income is so large that it is easier to save than to spend it all. Last, but not least, some men save and invest in industrial enterprises in a constructive way to build up their country — to make it strong and the home of prosperous workingmen. Such men, as one of their number once remarked, want to erect smokestacks for their monuments instead of tombstones.

10. Interest adds both to one's desire to save and to one's capacity to save. Different in nature from the other factors already discussed affecting men's attitude toward saving and spending is interest. From what has been said it is obvious that saving on a great scale would take place and savers would be willing to lend huge sums in the aggregate even if no interest were paid for loans. But the fact that interest is generally paid gives savers an additional incentive to save. It induces some to save who otherwise would not save, and induces some who would save a little to save more. In other words, there are some men who might prefer to spend $100 this year to spending the same amount a year later, but who would prefer to spend $105 next year to spending $100 this year. The five per cent premium, or rate of interest, turns the scale and makes savers out of spenders. A more important point, perhaps, is this: the payment of interest not only gives men a stronger incentive to save, but increases their power to save. Interest on past savings increases the saver's income and his capacity to save in the future. The man who saves his first $1000 early in life can accumulate many thousands of dollars for old age by merely thereafter saving the interest on his savings. It might be argued that this would not increase the capacity of the people as a whole to save, since the interest paid to the lenders is paid by the borrowers and decreases the capacity of the latter to save as much as it increases the capacity of

the former. But those who have saved are more likely to continue saving than those who are spending and borrowing are likely to begin saving. Therefore, the payment of interest by the spenders to the lenders is quite likely to increase the total amount of savings. Incidentally the fact that borrowers must pay interest on loans reduces somewhat their eagerness to borrow and restricts their spending.

11. **Three reasons for borrowing.** Having now analyzed the characteristics of human beings that influence their attitude toward saving and spending, and having noted some other factors that influence their attitude on saving and spending, let us inquire a little more closely into the reasons why people borrow. We have already indicated some of the reasons why people borrow in the foregoing discussion of the characteristics of people which lead them to spend freely, such as lack of foresight and of self-control, but we have not given all the reasons why people borrow. Borrowing is done for three main reasons, as follows:

1. To gratify present desire for ephemeral consumers' goods.
2. To buy durable consumers' goods.
3. To buy producers' goods.

Lack of foresight and self-control and other characteristics of human beings discussed in the foregoing pages lead mainly to borrowing for the first-named purpose, and have comparatively little to do with borrowing for the purpose of buying durable consumers' goods or producers' goods, except indirectly, as will be explained in the next chapter. By ephemeral consumers' goods we mean such things as food and drink, clothing, playthings, etc. — goods which are soon consumed, leaving nothing but the memory of the pleasure or satisfaction derived from their consumption. Much of the borrowing for this purpose may be called spendthrift borrowing. Spendthrifts borrow money to buy goods which they do not need, but which merely serve to add to their momentary pleasures. However, not all borrowing to buy ephemeral consumers' goods represents spendthrift borrowing. Worthy persons may have periods of bad luck — accidents, sickness, disastrous business experiences, and thus be reduced to the necessity of borrowing for a time to pay for the necessaries of life.

12. Durable consumers' goods. Durable consumers' goods consist mainly of houses and furniture. Borrowing money with which to buy a house in which to live and furniture to use in it is not spendthrift borrowing, provided the house and the furniture are not unduly pretentious and luxurious. On the contrary, such borrowing may be a mark of thrift. Heads of families that do not own a home must rent, and generally the rent paid for a house is greater than the cost of owning a home including the interest payments at the current rate of interest on a loan sufficient to pay for the house. Therefore, such borrowing, instead of increasing the amount the borrowers spend, decreases it. To the same extent it increases their capacity to save and eventually to repay the loan. One should, perhaps, include with durable consumers' goods automobiles driven by careful drivers. If so, we must qualify what has just been said. Borrowing to pay for pleasure cars and joy rides is spendthrift borrowing.

13. Borrowing for business purposes. Essentially different in nature from the borrowing to buy consumers' goods is the borrowing to buy producers' goods, or borrowing for business purposes. Business men borrow tremendous sums for this purpose, and this class of borrowing exceeds in amount all other borrowing. Most business men, as business is conducted to-day, do not have enough capital of their own to operate on the scale they desire or that is necessary for success in competition with others. If they have $10,000 of their own, perhaps they borrow $10,000, or in some cases several times that much, from others. Out of the income from their business they expect to pay the interest on their loans and eventually, perhaps, the principal. This class of loans will be discussed in more detail in the next chapter.

14. All that is saved is not lent. We have said that saving is closely related to lending, since it is only the savers or their heirs (or men acting as their agents) who have a surplus to lend.[1] But all that is saved is not necessarily lent. Savings constitute the difference between one's money income and the amount one spends for consumers' goods. Instead of lending this sum to others, one may keep it in the form of money or buy producers' goods with it. A salaried man who has saved several thousand dollars may buy a

[1] This does not apply to bank loans, for reasons explained later.

house to rent to others. This house is from his point of view producers' goods — business property. Or he may buy a hundred shares of stock in a business corporation and thus become part owner of all the corporation's business property.

A business man might do the same with his savings. But more often than not the business man's savings do not emerge as a sum of money, as do those of the salaried man, but as increases in the value of his business. His plant expands and his stock of goods increases. To find out what his savings really are, he must make a careful valuation from time to time of his business property. If he starts out one year with a business worth $100,000, and winds up a few years later with one worth $200,000, he may be said to have saved $100,000, assuming that he has no debts against the business in either case, and that his property outside of his business has remained the same.

15. The rate of interest a price problem — the price of loans. Let us now wrestle with the puzzle of what determines the rate of interest. The problem of the rate of interest is merely one phase of the price problem. The rate of interest, or the premium on present goods in terms of future goods, may be considered simply as the price of loans. For example, if the rate of interest is 5 per cent, and the interest on a $100 loan for one year is therefore $5, we may quite correctly speak of $5 as the price of such a loan. The price of loans is, like any other price, a matter of demand and supply. We might carelessly say it is determined by demand and supply, but we must remember that all prices affect demand and supply just as they are affected by demand and supply. It would be more accurate to say that the rate of interest must be such as to equalize demand and supply in the loan market.

We have, on the one hand, our three classes of borrowers, or would-be borrowers, who desire to borrow to buy ephemeral consumers' goods, durable consumers' goods, or producers' goods. The total amount of money that they are able and willing to borrow at the market rate of interest constitutes the total direct demand for loans. On the other hand, we have the potential lenders — those who have more present goods than they need and are in a position to lend, if they care to. As already pointed out, they do not need to lend all the surplus they have, since they can buy producers'

goods with it, or, if they choose, extra supplies of consumers' goods. Some part of their surplus or savings is in the form of money, or in the forms of claims on money, such as deposits in banks, and other parts of it can be turned into money by the simple process of selling some of their property. Whatever part of their surplus or savings these potential lenders are willing to lend at the current rate of interest constitutes the supply of loans.

16. Demand schedules for loans. There is not only a demand for loans and a supply of loans, but a demand schedule and supply schedule just as in the case of commodities. Some borrowers are more eager to borrow than others or more able to pay a high rate of interest. This applies to all three classes of borrowers. A man in dire need of consumers' goods might offer to pay a rate of 100 per cent, but another might be unwilling to borrow to buy consumers' goods if he had to pay more than 1 per cent. One man might be willing to pay 10 per cent on a loan with which to buy a house, but another might refuse to borrow for this purpose at more than 6 per cent. A very able business man making large profits might see opportunities to increase his profits by borrowing more capital even if he had to pay 20 per cent, whereas another less able might not clear enough from the use of the extra capital to pay 2 per cent. Again, a business man might be caught in a temporary pinch so acute that a loan would be absolutely necessary to save him from ruin. In such a case he might be willing to pay 100 per cent or more. Loans for business purposes may very properly be considered producers' goods, and the demand schedule for such loans is like the demand schedule for other producers' goods, as discussed in Chapter VII. In short, the maximum a business man can afford to pay for loans in the long run is the difference between the value of his product and all his other costs of production. He will pay only as much, however, as competitive conditions compel him to pay, and that is the rate of interest which measures the marginal vendibility of loans — the rate that the least desirous or least able borrower actually pays for his least desired loan. It follows from what has been said that at a low rate of interest more loans will be demanded than at a high rate, and that the quantity of loans demanded tends to increase as the rate of interest decreases.

17. Supply schedule for loans. Likewise the supply of loans is

affected by the rate of interest. Some loans will, of course, be made practically regardless of the rate of interest. If a man has money available for lending and has no other use for it, it pays him to lend it at 1 per cent rather than not lend it at all. But some lenders are influenced by the rate of interest. They have a minimum below which they will not offer a loan — possibly 3 per cent, possibly 5 per cent, possibly 10 per cent. The higher the rate, the more loans there will be offered. However, the present rate of interest has its greatest effect, not upon the present supply of loans, but upon the future supply. The past rate has pretty largely determined the present supply of loans. The past rate if high has stimulated past savings and made past savings larger than they would have been if the rate had been low, and it is past savings that constitute the stock of wealth from which present loans may be made. Still the present rate does affect the quantity of loans offered, and so we have a supply schedule for loans, showing that the quantity offered varies inversely with the market rate.

18. The rate of interest equalizes demand and supply of loans. We may represent the demand schedule and the supply schedule for loans as in Table XXVII.

TABLE XXVII. DEMAND AND SUPPLY SCHEDULES FOR LOANS

DEMAND (in billions of dollars)	RATE OF INTEREST (per cent)	SUPPLY (in billions of dollars)
100	0	2
50	1	3
30	2	4
20	3	5
10	4	6
7	5	7
5	6	8
4	7	9
3	8	10

With conditions of demand and supply as shown in Table XXVII and with competition on both sides, the market rate would be 5 per cent, since this is the rate that equalizes demand and supply. At a lower rate, as 4 per cent, demand exceeds supply. At a higher rate, as 6 per cent, supply exceeds demand. At the lower rate some borrowers would remain unsatisfied and would be represented as

going without loans, although the market rate is below the rate they are willing to pay rather than not borrow. Naturally this situation would be impossible. They would offer more and get their loans. At a higher rate supply would be greater than demand and some lenders would be unable to place their loans, although the market rate is higher than the rate they are willing to take rather than not make their loans. This also is an impossible situation. They would offer to take less. It is obvious that 5 per cent is the only possible rate. This rate may be said to measure the marginal time preference — the marginal premium on present goods in terms of future goods.

19. Pure interest and contract interest. The question may be raised why, if the rate of interest is the price of loans, are there so many different prices in the market at the same time? We find that in a country such as the United States various borrowers pay various rates of interest — some as low, perhaps, as 2 per cent, others as high as 8 or 10 per cent, and even, in exceptional cases, as high as 100 per cent or more.

The answer is that, in the relation between the borrowers and lenders and in the price paid for the loan, factors enter other than premium on present goods in terms of future goods. If the rate paid by borrowers represented always a premium on present goods in terms of future goods, and neither more nor less than that, then there would be at any given time just one rate of interest in any given market. Such a premium may be called the pure interest rate, as distinguished from the contract interest rate — the various rates various borrowers agree to pay for their loans. The pure interest rate may be considered to be about the rate of interest yielded by practically safe non-taxable government bonds, such as our own Liberty Bonds. Another good index of the pure rate of interest is the rate on short-term loans made by large banks to responsible business men — the commercial paper rate quoted on financial pages of metropolitan newspapers. If these rates are in the neighborhood of 4 per cent, then the pure rate of interest is not much more or less. Even these rates do not measure exactly the marginal premium of present goods in terms of future goods, because they are affected as are other contract interest rates by other factors. Whenever a borrower pays a rate much higher than the

rate yielded by sound government bonds, he is paying something more than the premium on present goods in terms of future goods. When he pays much less, he is paying less than the full premium. Let us note why borrowers often pay more or less.

20. Paying for risk assumed by lenders. Borrowers who cannot convince lenders that the loan is absolutely sure to be repaid when it is due, and that the interest payments will be made promptly, must pay in addition to pure interest something for the risk assumed by the lender. The greater the risk the lender must assume of losing both interest and principal, the greater must be the payment for this risk. This accounts for the fact that some business men and some corporations and some Governments can borrow at lower rates than others. At the present time the United States Government can borrow at rates only half as high as those that must be paid by some foreign Governments. Our Government pays only the premium on present goods; those others pay in addition to this premium something for the risk the lenders assume. Well-managed corporations in the United States who have established a reputation for paying their bills and can give good security can borrow for 5 per cent, or even less, while others pay as much as 7 per cent, or more. Some corporations borrow some money on first mortgage bonds at 5 per cent and some more on second mortgage bonds at 6 per cent. Reputable business men borrow on their promissory notes at 6 per cent, while spendthrifts must often resort to loan sharks or pawnbrokers and pay 100 per cent or more. Investors in preferred stocks often get 7 per cent, while bondholders of the same corporation get only 5 per cent, or less. Now in reality none of these borrowers pays, and none of these lenders receives, higher pure interest rates than the others. The lower rates represent primarily pure interest, while the higher rates include, in addition to pure interest, a considerable payment for risk. This is a fact of more than academic importance. If investors could be brought to realize that practically always these high rates are payments for risk, they would be less likely to risk their money in such investments.

21. Service, liquidity of loans, anticipated changes in rates. Borrowers must often pay also for labor service in connection with loans. For this reason small loans often bear a higher rate of interest than large loans, since the labor service involved in arranging

a loan is a larger percentage of a small loan than of a large loan. Partly for this reason farmers who borrow a few thousand dollars on mortgages pay a higher rate than large corporations that borrow millions, and business men in small cities pay higher rates to their banks for small loans than business men in large cities pay to their banks for large loans.

Another factor that influences the contract rate of interest is the ease and promptness with which the lender can get back the money he has lent or invested; in other words, the liquidity of the loan. Corporation bonds bear a lower rate of interest than farm mortgages of equal soundness because the bondholder can easily sell his bond on the open market, but the mortgage holder may have to leave his money tied up until the mortgage matures. Call loans in New York usually bear a rate of interest lower than the pure rate, because they can be called in at twenty-four hours' notice by the lenders. The money lent on call generally represents funds for which the bankers have no other present use; by lending it on call they get something for it while at the same time practically keeping it available for investment elsewhere.

Still another factor that affects the contract interest rate is the expectation of changes in the pure interest rate. If lenders have reason to think that the pure interest rate is going to rise for several years, they prefer to invest in short-term loans so that they will have their money available to reinvest a little later at higher rates, while borrowers under the same circumstances will be eager to make long-term loans so that they will not have to borrow later at higher rates. This will tend to increase the supply of short-term loans and decrease the demand, while decreasing the supply of long-term loans and increasing the demand. Thus short-term loans will become relatively cheap and long-term loans relatively dear. When lenders and borrowers anticipate a gradual fall in interest rates, then for similar reasons short-term loans will become dear and long-term loans relatively cheap.

22. Bank loans which are not the result of saving. In the foregoing discussion we have not distinguished loans made by banks from other loans, and it is necessary now to point out an important difference between the results of lending by bankers and lending by others. It is true that the supply of loans offered by bankers be-

comes a part of the total supply of loans, and from one point of view these bank loans are like any other. They add to the total supply or subtract from it as they increase or decrease in quantity, and at least temporarily tend to decrease or increase the interest rate, just as will an increase or decrease in loans from any other source. But note the peculiar thing about bank loans. Bankers get the means of lending, not by saving, merely, although they may do some saving, but by increasing the money supply, or, what is equivalent to increasing the money supply, increasing bank deposits. In other words, instead of lending money income they have saved they print and lend bank notes, or they lend to business men, not money, but deposits in their bank, which represent merely promises to pay money. We cannot here discuss this matter in detail, since we take up banking in a later chapter. But lending by banks may be compared with lending by a Government that simply prints paper money and lends it. Such lending, since it does not represent savings, merely increases the borrowers' capacity to buy goods without decreasing the lenders' capacity to buy. In other kinds of lending the lender by means of his loan transfers his power to buy goods to the borrower. As we shall see later, when expansion of bank loans reaches an abnormal stage, we have credit inflation and a general rise in prices. The higher price level increases the amount of money business men must borrow to carry on, and thus increases the demand for loans, often in greater proportion than the bank loan expansion has added to the supply. An increase in bank loans, unlike an increase in loans offered as a result of saving, does not tend, therefore, to cause a fall in the rate of interest, except temporarily.

EXERCISES

1. What is interest? Would there be interest if there were no money? Under what conditions, if any, would no interest be paid for loans? Why?
2. What are the reasons for borrowing and lending? What determines the general rate of interest?
3. With demand and supply schedules for loans as given in Table XXVII, what would be the rate of interest? Why would it be neither more nor less?
4. Why do some borrowers pay a higher rate for loans than others in the same market at the same time? What is the pure rate of interest? Give examples of the pure rate of interest. Give examples of rates paid for loans

which represent something more than pure interest. What do they represent?

5. Does the fact that interest is paid for loans induce or hamper the accumulation of capital? Why?

For "References" for this chapter see end of Chapter XXIV.

CHAPTER XXIV

PRODUCERS' LOANS AND THE RATE OF INTEREST

1. How time-preference accounts for producers' loans. In the preceding chapter it has been indicated that the rate of interest is determined by marginal time-preference, which gives us both a supply of loans and a demand for loans. The current rate of interest is the rate that tends to equalize demand and supply. If, for example, the current rate of pure interest is 5 per cent, and the demand and supply of loans are equalized by this rate at $7,000,000,000, then we have this situation in respect to time-preference:

We have lenders who in the aggregate prefer 105 per cent of $7,000,000,000 a year from now to 100 per cent of that sum to-day; and we have borrowers who in the aggregate prefer $7,000,000,000 to-day to 105 per cent of that sum a year from now. We have implied by time-preference a preference for present consumption over future consumption — a preference for present consumers' goods over future consumers' goods. This is the preference of the needy or improvident.

But here a difficulty seems to present itself. Under the present industrial system most business men require the use of considerable capital to compete effectively, and if they do not have much capital of their own they must borrow extensively. They do, in fact, borrow so extensively that their demand for loans constitutes the greater part of the total demand. It would appear that these loans of business men are the result, not of a desire for immediate consumption on the part of the borrowers, but, on the contrary, of a desire to carry on productive enterprises. They would seem to have no relation to a time-preference for present consumption over future consumption. If time-preference, the preference for present consumers' goods over future consumers' goods, determines the rate of interest, it must be shown that producers' loans grow out of such time-preference, otherwise we leave the greater part of the demand for loans out of consideration. This can readily be done if the reader will follow the discussion through the next few pages.

The business man who has insufficient capital of his own must borrow to pay for the producers' goods he requires. These include labor, materials, supplies, tools, machinery, buildings, etc. Out of the combination of all these producers' goods will finally emerge consumers' goods — sometime in the future. Producers' goods are consumers' goods in process of production, but not yet ready for consumption. They may in fact be thought of as future consumers' goods. The plow of the farmer, the leather of the shoemaker, the loom in the cotton mill, the labor of the mill hand, all represent future goods in the sense that the product made from them or by their aid will not be ready for sale or consumption until some future date.

If the business man did not have to pay for his producers' goods until he had sold the product made from them or with their aid, he would not need to borrow, but could always pay for his producers' goods, in whatever quantity bought, out of the money received for the product, provided only that the product sold for as much as or more than he paid for the producers' goods. If the product under such circumstances were worth more than he paid for the producers' goods, he would have realized something in the way of wages or profit for himself.

But the persons from whom our business man buys his producers' goods — the laborers, and the other business men from whom he buys materials, machines, supplies, etc. — these want to be paid at once, or within a short time, and in order to pay them before he sells his product, the producer must borrow. He borrows, not because he wants present consumable goods for himself, but in order to pay cash for the producers' goods he buys. Now cash, since it can always be exchanged for present consumers' goods, is equivalent to present consumers' goods. But producers' goods, as we have indicated, are future consumers' goods. When the business man pays cash for producers' goods, he is in effect, therefore, exchanging present goods for future goods. The sellers of the producers' goods, on the other hand, are exchanging future goods for present goods. If the business man in bargaining with them offered to pay them in the future the full future value of the product made from their producers' goods, they would in all probability offer to accept less in ready cash, because they would prefer present payment to future payment,

or present goods to future goods. We can safely say in all probability, because in actual business practice payment is usually not deferred until the business man sells his product. In those cases, as in retail merchandising, in which payment is deferred, the merchant who buys is usually offered a discount for cash — that is to say, if he pays at once he pays less than if he pays later.

When the sellers of producers' goods obtain cash for their goods, they are obtaining present goods for future goods as truly as if they had borrowed money, getting cash to-day in exchange for a promise to pay back cash at some later date. When the producer pays cash for these producers' goods or future goods, he is in effect making a loan to the sellers of them. When, because of lack of sufficient capital to finance his business operations, he turns to the loan market to get the ready money to pay for his producers' goods, he is acting as an agent in transmitting the sellers' demand for present goods to the loan market. Thus it is clear that business men's loans for business purposes are the result of the time-preference of the various persons from whom they buy producers' goods — the preference of these persons to be paid in cash at once over being paid in the future. The total demand for loans consequently is accounted for by time-preference, and not merely that part of the demand represented by loans made directly for the purpose of buying consumers' goods.

2. Discounting producers' goods. When a business man borrows money at the current rate of interest to pay cash for producers' goods, the interest that he is compelled to pay becomes one of his costs of production and reduces by its amount the maximum sum he can pay in the aggregate for all his other cost items. The more he must pay as interest, the less he can pay out for other items. We may say, therefore, that he tends to discount the future value of the producers' goods he buys at the current rate of interest. If the total value of the product of a certain quantity of labor and material when ready for sale were $105, and the current rate of interest 5 per cent, then the most the business man could afford to pay for the labor and material would be $100, since that sum plus 5 per cent would equal $105, the total value of the product. If he could postpone payment for his labor and materials until he sold the product, he could afford to pay a maximum of $105.

There is a close analogy between the business man's buying of producers' goods and the banker's buying of a promissory note. When a banker discounts, or buys, a promissory note, he pays the present value of the note. If the note is for $100 due in one year, and the current rate of interest or discount is 5 per cent, the banker allows the borrower or seller of the note $100 less 5 per cent, or $95. The borrower gets $95 to-day and pays back $100 a year later.

If a certain business man produces, not a finished consumers' good, but a product that is sold to other business men as a producers' good, as, for example, a cotton loom, this product, like his own producers' goods, will be discounted at the current rate of interest. That is to say, the cotton cloth manufacturer who buys the loom, together with other producers' goods, will tend to pay for all his producers' goods in the aggregate a sum which will represent the present value of his future product discounted at the current rate of interest. Most consumers' goods in the process of production pass through a series of stages in the establishments of a series of business men. The product of the cotton planter is the raw material of the cotton spinner. The product of the spinner, yarn, is the raw material of the weaver. The product of the weaver, cloth, is the raw material of the shirt manufacturer, and so on down to the retailer who sells the finished shirt to the ultimate consumer. In such cases a whole series of discounting operations takes place. The retailer discounts the product of the wholesaler, the wholesaler discounts the product of the shirt manufacturer, the shirt manufacturer discounts the product of the cloth producer, and so on down to the cotton planter, who discounts in his turn the product of the agricultural implement manufacturers whose products he uses. All this discounting is not done consciously, but rather unconsciously through the operation of demand and supply of commodities, labor, and loans under the competitive system. The current rate of interest on loans represents for all producers a cost of production, which reduces somewhat the prices that they would otherwise be compelled by competition to pay for their various producers' goods.

If it were not for time-preference, there would be no interest paid, and business men in competition with one another would tend to bid up the prices of producers' goods to such a point that in the

aggregate the prices paid would equal the value of the product, or at least until they equaled the value of the product of the least efficient producer able to stay in business. But business men are compelled, through the operation of time-preference, to pay the rate of interest that measures marginal time-preference when they borrow, and this prevents them from bidding up the prices of the goods that they buy to the full future value of the product. The price of loans itself becomes a cost of production, and the price business men pay for loans, as has been stated, reduces by just that much the maximum they can pay for their other cost items or producers' goods. Even if business men did not need to borrow, but had capital enough of their own, it is unlikely that they would pay as much for producers' goods as they expected to get for the product. They have time-preference, as do other persons, and prefer present goods to future goods, and would buy future goods only at a discount in terms of present goods.

There tends to be a difference, therefore, between the amount paid in the aggregate by business men for their producers' goods, not including the price of loans, and the value of the product. This difference, or excess value, appears even in the case of the marginal producer who is not making profits. In the case of the marginal producer it is interest. The higher the rate of interest, the greater it becomes. The rate of interest, which is determined by marginal time-preference, determines this difference, in the opinion of the present writer. There are, however, many economists who hold that, on the contrary, the rate of interest is determined by this difference, and that this difference is determined by the marginal productivity of capital. In later sections of this chapter the marginal productivity theory of interest will be considered, but it may be worth while, first, to illustrate by means of a formula or equation the process of evaluating producers' goods.

3. Calculating the value of producers' goods. For any indispensable producers' good, or class of producers' goods, whether it be labor, machinery, materials, or land, the producer may pay as a maximum price the amount that measures the difference between the anticipated value of the product on the one hand and the aggregate of all other costs on the other, less the current rate of interest on all capital tied up in the business, including the interest on the

price paid for this particular good. This is not so complicated as it appears. The idea may be expressed mathematically by means of the following formula or equation:

Let x equal the price of the producers' good in question.
a equal the value of the product.
b equal the aggregate prices of all other producers' goods.
r equal the rate of interest.
Then $x = a - (b + br + xr)$.

Suppose the process of production to extend over just a year and producers' goods used to be worn out in the process.

Then if a is \$100,
b is \$90,
r is 5 per cent or $\frac{5}{100}$

x will equal \$100 − (\$90 + 5 per cent of \$90 + 5 per cent of x)
or x plus 5 per cent of x equals \$100 − \$90 − 5 per cent of \$90
or $\frac{21}{20}x$ equals \$100 − \$90 − \$4.50, or \$5.50
or x equals \$5.24.

The reader will recall that in an earlier chapter, before we had discussed interest, it was stated that the maximum price a producer could in the long run pay for any producers' good is the difference between the value of the product and all other costs of production, including interest. That comes to exactly the same thing as the statement represented by the foregoing equation.

4. Productivity of capital. In Section 1 of Chapter II it was stated that perhaps man's greatest single improvement in methods of production was the introduction of the use of capital, or man-made producers' goods. It was pointed out that the advantage gained from the use of capital in production lies in this:

A given amount of labor expended in making capital goods plus the labor expended in using them to produce consumers' goods will yield a greater return than the same amount of labor expended directly in the production of consumers' goods. In other words, the roundabout method of production is more effective than the direct method.

To illustrate this point the time-worn example of the primitive fisherman was given. This fisherman found that by first producing

a hook and line and fishing with it, he could catch more fish than he could catch in the same length of time with his bare hands or kill with a convenient stick or stone. From some such simple beginning the use of capital has spread throughout the world. In practically all industries the roundabout method of production has been found to be much more productive than the direct method, and in many industries the individual business man must have possession of great quantities of capital in order to employ the most effective methods of production and to compete successfully with others. The great quantity of capital required by most modern business enterprises brings business men into the loan market, and their borrowing, as has been indicated, represents a large proportion of the total demand for loans.

Now some writers contend that not only does the greater productivity of the roundabout method of production, as compared with the direct method of producing without capital, make it possible for business men to pay interest on loans for productive purposes, but that marginal productivity of capital is the chief factor in determining the rate of interest. Since the relative effectiveness of the capitalistic method of production does affect the demand and supply of loans through the enormous amount of capital it brings into use, and since the marginal productivity theory of interest is widely held, it seems desirable to consider both these points with some care in connection with our treatment of the subject of interest.

5. Gross, net, and diminishing productivity of capital. The term "productivity of capital" is often loosely used, and this leads to much unnecessary confusion. It is important that the student distinguish carefully between gross productivity of capital and net productivity, and that he understand clearly what is meant by diminishing productivity and marginal productivity. To illustrate the correct use of these terms and to aid in the discussion of the relation between productivity of capital and the rate of interest, Table XXVIII has been constructed. It represents an elaboration of the illustration of the use of capital by the primitive fisherman turning from catching fish by hand to hook-and-line fishing. In this section we are concerned only with the first nine columns of the table — the column numbers being given in the first horizontal row of figures in the table.

Our table shows the results of a man's fishing first with no hook and line, and then fishing successively with one hook and line, two hooks and lines, three hooks and lines, and so on up to eight. It is assumed that each hook and line requires for its construction 20 days of labor, and lasts just 100 days. If a fisherman is to fish with one line, then he must spend for every 100 days of fishing 20 days of labor in making hooks and lines; if he wants to fish with two lines, he must put in for every 100 days of fishing, 40 days of preliminary or roundabout labor making hooks and lines, and so on, until finally if he wants to fish with eight lines, he must devote for every 100 days of fishing 160 days of preliminary labor to the manufacture of hooks and lines.

In the second row of figures in columns 1 to 7, it appears that one man fishing with no hook and line in 100 days of fishing and 100 days of labor catches 300 fish, or 3 per day of fishing and 3 per day of labor.

In the next row, columns 1 to 9, it appears that one man fishing with one hook and line requiring 20 days of roundabout labor, in 100 days of fishing and 120 of labor (including the 20 days of work on hook and line), catches 1800 fish, or 18 fish per day of fishing and 15 fish per day of labor, and that the increase in the number of fish per day of labor over fishing by hand is 12, and that the percentage increase per day of labor is 400 per cent. That is to say, labor applied to fishing in the roundabout way with one line is five times as productive as labor applied to fishing without any hook and line.

We may note now the distinction between gross productivity of capital and net productivity, with capital represented by one hook and line. Fishing by hand the man catches 3 fish per day; with one line he catches 18 per day. The increase is 15 per day and represents gross productivity of hook and line per day. But this leaves out of account the 20 days of roundabout labor yielding no fish. Counting in these 20 days' labor the average catch per day is only 15, or 12 more per day than the direct method yields. This is the net productivity of the hook and line, and represents the net gain per day of the roundabout method over the direct method.

In the next row of figures, columns 1 to 9, it appears that one man fishing with two lines, requiring 40 days of roundabout labor, in 100 days of fishing and 140 days of labor catches 2800 fish, or 28

TABLE XXVIII. MARGINAL PRODUCTIVITY OF CAPITAL AND THE RATE OF INTEREST

Number of Hooks and Lines	Days of Roundabout Labor	Days of Fishing	Total Days of Labor	Total Number of Fish Caught	Fish per Day of Fishing	Fish per Day of Labor	Increase in Fish per Day of Labor	Percentage Increase per Day of Labor	100 Per Cent Interest on Loans for Roundabout Labor	Total Output Less Interest at 100 Per Cent	Wages per Day with Interest at 100 Per Cent	50 Per Cent Interest on Loans for Roundabout Labor	Total Output Less Interest at 50 Per Cent	Wages per Day with Interest at 50 Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
0	0	100	100	300	3.00	3.00	0.0	0.0%	0	300	3.00	0	300	3.00
1	20	100	120	1800	18.00	15.00	12.0	400.0	257	1543	12.86	138	1662	13.85
2	40	100	140	2800	28.00	20.00	5.0	33.3	622	2178	15.55	350	2450	17.50
3	60	100	160	3700	37.00	23.12	3.1	15.5	1009	2691	16.82	584	3116	19.47
4	80	100	180	4500	45.00	25.00	1.9	8.2	1385	3115	17.31	818	3682	20.45
5	100	100	200	5200	52.00	26.00	1.0	4.0	1733	3467	17.33	1040	4160	20.80
6	120	100	220	5830	58.30	26.50	0.5	1.9	2058	3772	17.15	1249	4581	20.82
7	140	100	240	6360	63.60	26.50	0.0	0.0	2344	4016	16.74	1436	4924	20.52
8	160	100	260	6760	67.60	26.00	−0.5	−1.9	2575	4185	16.10	1591	5169	19.88

per day of fishing and 20 per day of labor. The increase in fish per day of labor over fishing with only one line is 5, and the increase in per cent is 33.3 per cent.

It seems that fishing with two lines yields more fish per day of fishing and more per day of labor than fishing with one, but the rate of increase is less than that given by the first hook and line. This illustrates the principle of diminishing productivity of capital, which holds that after a given point is reached successive additional units of capital applied with a given amount of labor will not yield a proportionate increase in output per unit of capital. In other words, as methods of production grow more and more roundabout, productivity of labor increases, but the rate of increase tends to grow less and less as successive doses of capital are added.

Turning once more to the table, note that as more lines are added the number of fish caught in 100 days of fishing or per day of fishing gradually rises, but that the rate of increase grows gradually less, until when eight lines are used 6760 fish are caught in 100 days, or 67.6 per day.

But in column 7, showing the number of fish caught per day of labor, it appears that the increase continues only up to 26.5 fish a day when six lines are used. Seven lines yield the same result, while eight lines bring about a decrease. In other words, the extra number of fish caught by the eighth line during its lifetime of 100 days (400 fish) is less than the man could catch in 20 days' fishing with six or seven lines. It would pay better, therefore, to fish with only six or seven than to make and use eight lines.

Columns 8 and 9 show that the rate of increase falls to 0.5 of one fish per day, or 1.9 per cent, when the sixth line is added, that the increase is zero when the seventh line is added, and that a decrease occurs when the eighth line is added. One might conclude from this that there is a point beyond which it does not pay to accumulate capital of a particular kind, such as hooks and lines, and that further increase in productivity of labor can be achieved only by devising new forms of capital. In this particular case fishing might be made more productive by the use of boats or nets. With one boat and one net productivity of labor might rise much above 26.5 fish per day. But once the shift from hook and line fishing to boat and net fishing were made, and additional boats and nets were added

to the total supply, the principle of diminishing productivity of capital would operate once more — additional boats and nets would not yield proportionate increases in output.

6. Marginal productivity of capital. The term "marginal productivity" still remains to be explained. By marginal productivity is meant the productivity of the last or least effective unit of capital. Suppose that the fisherman is supplied with just three hooks and lines. Then the marginal productivity of his capital is represented by the product added by the third hook and line, or the product lost if he reverts to fishing once more with two lines. Expressed as fish per day of labor, it is, in Table XXVIII, 3.1 fish per day. Expressed as a ratio of increase in the effectiveness of labor, it is 15.5 per cent. It may also be expressed in another way. It takes 20 days of labor to produce the third hook and line. Applying labor with the capital available of two hooks and lines, it yields 20 fish per day. In the time required to produce the third hook and line 20×20 fish could be caught, or 400. This may be considered the cost in fish of the third hook and line. During its lifetime, 100 days of fishing, it adds 900 fish to the total catch, raising the total from 2800 to 3700. The net gain in fish from making the third hook and line is, therefore, $900 - 400$, or 500. The net gain, 500 fish, is 1.25 times its cost, 400 fish. The marginal productivity of capital in this case is then 125 per cent when expressed as a percentage of the cost of the marginal unit of capital. It is in this sense that the marginal productivity theory of interest uses the term — productivity as a ratio of cost. This has a weakness that the productivity theorists seem to overlook. It implies that the prices of producers' goods are equal to their costs of production, which obviously they usually are not. Upon this point more will be said later in this chapter.

7. Competition forces business men to resort to roundabout methods of production, or the use of capital. Up to this point we have assumed the fisherman to be fishing on his own hook, so to speak. We have noted that his labor becomes more and more productive — yields more and more fish per day as he resorts to more roundabout methods until he is using six hooks and lines, when his product per day of labor is 26.5 fish. Let us now bring the business man into the picture — the man who buys producers' goods and sells the product, hoping to make a profit — and note the relation

between the productivity of capital, diminishing productivity of capital, and marginal productivity of capital to loans and the rate of interest. Here the problem tends to grow complicated, and more headway can be made in grasping the principles to be presented if certain assumptions are made which will get rid of all unnecessary complications and bring out more clearly the fundamental points to be considered. Assume, then:

(1) That the best fishing waters are unlimited in supply, and that economic rent, therefore, does not enter into our problem as a share in the distribution of the product. There is no rent.
(2) That business men — the employers of our fishermen — are all equally able, that the business is not risky, and that no profits are realized — costs of production just equaling the value of the product. Employers merely earn fair wages, such as they could make as fishermen.
(3) Since there is no rent and no profit, the total output of industry represents wages and interest. Since employers make only fair wages and employ many men, their share per employee in the product may be considered negligible, so that practically the total product of labor goes for wages, except that part which is paid out in interest.
(4) That fish are used as money — every one being paid in fish.

These assumptions, while they are obviously contrary to fact, do not invalidate the conclusions that may be drawn from the discussion based upon them. They merely simplify the problem being considered, which, as stated, is the relation between productivity of capital, the loan market, and the rate of interest. Suppose now that a considerable number of employers were competing with one another under the conditions assumed for a much greater number of fishermen, paying wages in terms of fish. In accordance with the principles already established in earlier chapters, and the assumptions just made, competition among the employers would force wages up to the full value of the product of the fishermen discounted at the current rate of interest.

To start with, assume that there is no interest, because there is no time-preference; that workers would just as soon as not wait for wages until the product of their labor were available or that lenders would advance to business men enough fish to pay wages, exacting no interest on the loans. Under these circumstances business men would strive to employ their men in the most productive way, and after

some experimentation would find this to be the method of fishing with six or seven lines per man. Let us say six, since the seventh line would bring no advantage, and would probably not be used. This might mean either that they had all the fishermen first work 120 days making hooks and lines and then fishing 100 days until the hooks and lines were worn out, or that after having made 600 hooks and lines for each unit of 220 men, they would keep 120 men out of each 220 making hooks and lines while the other 100 men fished. By this method the product would be 26.5 fish per day per man. We may assume all the men to get equal wages no matter for whom they were working or whether they were making hooks and lines or fishing. If paid less by one employer or for one task, they would leave that employer or that task to go where higher wages could be obtained. Under these conditions wages would rise to 26.5 fish per day, as soon as employers generally found the most effective method of fishing. If wages were below 26.5 fish, because some producers used less effective methods than the six- or seven-hooks-and-lines method, then the more alert producers would gain a profit and increase their output by hiring more men. Eventually all the fishermen would be able to find employment at 26.5 fish per day, and business men who tried to get along with less effective methods, as with one or two hooks and lines fishing, would not produce enough to pay current wages and would either have to drop out or use more roundabout methods — more hooks and lines.

Thus competition would force business men to tie up considerable resources in hooks and lines — in our assumed case, at least six hooks and lines for every man kept fishing, or 600 hooks and lines for each 220 men employed. Now if fishermen would not wait for their wages until the fish were caught, and business men did not themselves have a reserve of fish, the employers would need to borrow fish to pay the wages of the men employed to produce the hooks and lines by means of which alone they could produce effectively. Under actual business conditions workmen will not wait, and business men do often lack sufficient capital of their own and they do borrow. Thus it is clear that the greater effectiveness of the roundabout method of production brings business men into the loan market for the means of using the roundabout method. There is, then, a relation between the productivity of capital and the loan market.

8. The relation between the rate of interest and the roundabout method. We have reached now perhaps the most difficult point in all economic theory — the relation between the rate of interest and the roundabout method of production, or the relation between the rate of interest and the so-called marginal productivity of capital. To aid in our discussion of this difficult subject columns 10 to 15 in Table XXVIII were devised. Columns 10, 11, and 12 indicate how the product of industry would be divided between interest and wages if the current rate of interest were 100 per cent, and columns 13, 14, and 15 show the division of the product between interest and wages if the rate of interest were 50 per cent. We use an abnormally high rate of interest, but we are by assumption dealing with a primitive system of industry under which the rate of interest might well be that high.

These figures require some explanation. We assume that fishermen now demand their wages at once and are not content to wait, and that employers, not having resources in fish, turn to the loan market, where they find the rate of interest to be 100 per cent for the duration of their loan. Loans are not required to pay wages of fishermen actually fishing, since their wages can be paid out of current product, but only to pay wages of workers making hooks and lines — the roundabout labor — the labor required to provide the capital equipment. It will simplify our problem to assume that all workers are first employed in making hooks and lines, and then employed in fishing, and that thus an interval elapses when no fish are being caught.

When no hooks and lines are used in fishing, no capital equipment is required and no loans are made. Fishermen are paid out of current product, and wages, under assumptions that have been made, are three fish per day — the total product of labor.

When an employer, however, first employs his men 20 days in making one hook and line apiece, during which time no fish are caught, but must nevertheless pay them current wages, and must borrow fish at 100 per cent interest for this interval, labor no longer gets the total output, but part of it goes in interest. If we could assume that the men in this roundabout method would still get only three fish per day, then the loan required would be only 60 fish per man for the 20-day period, and the interest would be 60

fish. Total expenses of the employer, then, for 120 days' labor of one man would be 360 fish in wages and 60 fish in interest, or 420 fish altogether. Total product of the laborer in 120 days, as given in our table (column 5), is 1800 fish. This would leave the employer the relatively huge profit per worker of 1380 fish. But by our assumptions competition is so severe and employers so nearly equal in ability that profits do not exist. We must conclude, then, that when the roundabout method is found to be so much more productive, wages rise until wages and interest together equal the value of the product.

Instead of figuring wages at three fish per day, then, we calculate them in the table at the amount that the competing employers could pay with this method of production and with interest at 100 per cent and still come out just even — with no profits and no loss. This proves to be 12.86 fish per day.[1] At this rate the loan required to pay 20 days' wages amounts to 257 fish, and interest on this loan at 100 per cent is 257 fish. This leaves a total of 1543 fish available as wages for the 120 days of labor, or 12.86 fish per day.

More roundabout methods of production increase the output per worker per day, as indicated, but necessitate greater loans, since a larger proportion of the workers' time is devoted to preliminary labor during which no fish are caught out of which wages can be paid currently. When 40 days of preliminary labor are devoted to making two hooks and lines, 40 days' wages must be provided for by loans. By the same process of calculation just used the rate of wages per day will now be 15.55 fish, the interest on the loan for 40 days' wages at this rate will be 622 fish, and the balance of the product left for wages will be 2178 fish. Finally, if eight hooks and lines were used and 160 days of preliminary labor were devoted to their manufacture, the interest on the loan required to pay wages during this period would be 2575 fish, which would leave available for wages, out of the total product of 6760 fish, only 4185, or 16.10 fish per day. According to Table XXVIII, it would not pay to

[1] Calculated algebraically as follows:
Let x = wages per day.
y = days of roundabout labor.
z = days of fishing.
Since $y = 20$; and $z = 100$; and interest = 100 per cent of xy; and wages + interest = 1800;
Then, $2xy + xz = 1800$, or $40x + 100x = 1800$; or $140x = 1800$, or $x = 12.86$.

push roundabout methods this far with interest at 100 per cent. It would not even pay to push it as far as the six-hooks-and-lines method, which would pay if there were no interest to be considered. Column 12 indicates that maximum wages could be paid when five hooks and lines were being used, when wages would be 17.33 fish per day.

If we calculate interest charges at the rate of 50 per cent, as in column 13, then wages at any given stage of roundaboutness will be higher than when interest is calculated at 100 per cent. Thus when the five-hooks-and-lines method is used, wages will be 20.80 fish per day when interest is 50 per cent, as against 17.33 fish when interest is 100 per cent. With interest at 50 per cent, it would pay to use the six-hooks-and-lines method, but not the seven. With six hooks and lines the maximum wage of 20.82 would be reached, and with seven, wages would fall to 20.52.

Now in the foregoing perhaps tiresome calculations we have assumed interest rates — rates determined according to our previous discussion by marginal time-preference. It appears from the table that the rate of interest affects the extent to which it pays to push the roundabout method. With no interest, the seven-hooks-and-lines method would be at least as desirable as the six. With interest at 50 per cent, it would not pay producers to use seven hooks and lines, since they could not pay wages as high as wages paid by other producers using only six, and with interest at 100 per cent, it would not pay producers to use six hooks and lines, since they could not pay wages as high as those using five. The lower the rate of interest, the more roundabout methods of production may advantageously be used, assuming that additional increments of capital equipment, such as hooks and lines, increase the effectiveness of labor.

9. Does marginal productivity of capital determine the rate of interest? As already stated, many economists contend that marginal productivity of capital determines the rate of interest, or at least operates together with marginal time-preference to determine it. They say that savers provide us with a supply of loans, and that the supply varies with the rate of interest — the higher the rate of interest, the more will be saved and offered in loans. But the demand for loans, they add, depends upon the productivity of capital. Because capital is productive — that is, because labor applied in the

roundabout way is more productive than labor applied in the direct way — producers come into the market for loans by means of which to engage in roundabout production. The rate they will pay depends upon the increase in productivity of labor from the use of capital. If $1000 worth of capital makes a given amount of labor produce $100 more during a year than the same labor would produce without the use of that capital, the producers can afford to pay 10 per cent a year interest on the loan. The rate of interest that producers can pay for productive loans tends to decrease, however, with the extent of these loans, because of the diminishing productivity of capital (as illustrated in Table XXVIII). Finally, the market rate of interest is determined by the increase in productivity that results from the application of the least effective unit of capital — that is, by the marginal productivity of capital.

This theory of interest has a considerable degree of plausibility and is widely accepted, but it is difficult to present it in a convincing way. That capital is productive, in the sense that the roundabout method of production yields a greater output per day of labor than the direct method, is clear. That the degree of productivity diminishes as additional like units of capital are employed, or as the degree of roundaboutness increases, is also evident. That there is a marginal productivity of capital naturally follows. It seems, however, to the present writer that the rate of interest, or marginal time-preference, determines the degree of roundaboutness in industry that pays, and that the rate of interest thus determines how far capitalistic production may be pushed and what the marginal productivity of capital shall be, rather than that the marginal productivity of capital determines the rate of interest. To revert to Table XXVIII, when the rate of interest is 100 per cent, it does not pay to use more than five hooks and lines per man, and marginal productivity of capital is the productivity of the fifth hook and line. If the rate of interest drops to 50 per cent, it pays to make production more roundabout and to use six hooks and lines per man, and then marginal productivity of capital is the productivity of the sixth hook and line. Thus, if people have a low degree of time-preference, and the rate of interest is very low, as 4 or 5 per cent, it pays to push roundabout methods of production to great extremes, and production per man and wages rise very high.

If now we try to show just how marginal productivity of capital determines the rate of interest, rather than *vice versa*, we run into difficulties. The rate of interest is a ratio of the loan — a certain per cent. If the marginal productivity of capital determines the rate of interest, then we must find what per cent this productivity is of the loan. For instance, according to Table XXVIII, in 100 days of fishing without hook and line a fisherman catches 300 fish. With one hook and line he catches in that time 1800. The gross productivity of the hook and line is 1500. The hook and line cost something, and this cost represents the amount of the loan, or capital used up in the 100 days of fishing. The gross productivity of this capital, 1500, less the cost of the capital, or the amount of the loan, represents the net productivity, and in this case also the marginal productivity, since this one hook and line is also in this case the marginal one. But what is the cost of the capital? One might say that since fishermen fishing by hand produce only three fish per day, they could be hired at that rate per day. Since the hook and line cost 20 days' labor, it would cost 60 fish. Deducting the 60 fish it cost from its gross productivity would leave as its net productivity 1440, or 2400 per cent of its cost. Marginal productivity of capital here, then, would be 2400 per cent and this would be the rate of interest. But this involves the assumption that wages of fishermen with one hook and line are determined by what fishermen are worth per day without hook and line. It would seem to be at least equally reasonable to assume that fishermen are worth what they produce by the roundabout method of fishing with one hook and line. In that case they would be worth 15 fish per day. The cost of the hook and line would be 15×20, or 300 fish. Wages for 100 days of fishing would be 1500 fish, and total costs — hook and lines plus wages of fishing — would be 1800. There would be no net productivity of capital, no marginal productivity, and no interest.

The productivity theorists seem to assume that in any given stage of roundabout production some producers use more roundabout methods than others, and thereby manage to produce more units of product with a given quantity of labor and other producers' goods. The more roundabout producers sell at the same prices as the less roundabout producers, and pay for labor and commodities

wages and prices determined by what the less roundabout producers can afford to pay. Hence the producers using the more roundabout, and more effective methods, realize a net gain resulting from their use of the extra capital required for their more roundabout methods. This net gain represents the productivity of the extra capital used and determines the rate of interest. The rate of interest is found by dividing the net gain in dollars and cents by the money cost of the extra capital. When capital accumulates in response to the interest paid for its use all producers tend to adopt more roundabout methods, but the more alert keep always a few steps ahead of the less alert, and thus a continued demand for additional capital at the rate of interest determined by marginal productivity prevails. As more and more capital is accumulated, however, diminishing productivity of capital results, and the net gain from the use of additional installments to obtain still more roundabout methods grows gradually less. In other words, marginal productivity of capital grows less, and the rate of interest declines. The rate of interest is determined at all times by the addition to the ultimate product of labor which results from the least effective phase of the capital-using process, or by the addition to the product of labor which results from the unit of capital applied in the most roundabout method. The marginal borrowers, whose capacity to pay determines the rate which all other borrowers must pay and the general rate of interest are, therefore, those business men who are carrying the roundabout methods of production to the greatest extreme.

If one illustrates this proposition by a sufficiently simple example, or imagines an economic society with no changes taking place except a gradual accumulation of capital, it is possible to grasp the notion that marginal productivity of capital on the demand side jointly with time-preference on the supply side may determine the rate of interest. At best, however, the notion of marginal productivity of capital as the chief determinant of the interest rate remains vague and elusive, and is based upon several assumptions of doubtful validity to which references have been made above. In the actual business world processes of production are ever changing. New inventions bring new forms of capital. New industries grow up. Efficient men use exceedingly roundabout methods of production;

inefficient men use more direct methods. Some borrowers borrow to buy consumers' goods; some to buy producers' goods used in less roundabout methods; some to buy producers' goods used in more roundabout methods. Among all classes of borrowers, some are more eager, others less eager. To assert that among all these borrowers for all these various purposes, that group of borrowers who are using capital in the most roundabout way are the identical borrowers who are able and willing to pay the lowest rate of interest for their loans — the marginal borrowers who from the demand side determine the interest rate, is to assert something extremely difficult to prove. The present writer is not convinced that the marginal borrowers are those using the marginal capital, nor that marginal productivity of capital determines the rate of interest.

Finally, in this connection it may be stated that the marginal productivity theory must assume the fact of time-preference which operates jointly with marginal productivity of capital to yield the current rate of interest. The minute we make the assumption that time-preference is nil, the interest rate disappears, and productivity of capital, in the sense of a difference between the costs of production of the no-profits producer and the value of his product, becomes non-existent. On the other hand, time-preference alone accounts for an interest rate and does not require any assumption concerning the productivity of capital. There would be an interest rate if the roundabout method of production were not used. In fact, there probably was a high rate of interest in prehistoric days before man-made producers' goods came into existence. Men borrowed from one another consumers' goods and paid back their loans with interest, the rate being roughly determined by marginal time-preference. Time-preference as a determinant of interest rates stands on its own feet. Marginal productivity of capital does not.

10. Social significance of the time-preference versus the marginal productivity theory of interest. There seems to be an uneasy feeling on the part of some expounders of the marginal productivity theory of interest that, unless their theory is established as the correct one, interest can no longer be justified as a share in the product of industry; that, as explained by the time-preference theory, it represents a form of extortion by him that hath from him that hath not. As such, interest was condemned by the Church and actually

made unlawful as "usury" in medieval times, and might again be outlawed. If the time-preference theory of interest denied that capital is productive in the sense that the roundabout method of production is more effective than the direct method, and thereby discouraged the accumulation of capital, it would indeed be desirable that the marginal productivity theory should be established as the sound one. But all that the time-preference theory denies is that marginal productivity of capital determines the rate. It points out that a high rate of time-preference is a deterrent to the accumulation of capital, and thereby to more effective methods of production, but it does not thereby condemn accumulation of capital, nor condemn interest as a share in distribution. Indeed, if one correctly understands the idea of time-preference one sees that any legislation designed to abolish interest would fail in its purpose, or at least be enforced with extreme difficulty. To abolish interest it would be necessary to regulate the prices of all producers' and consumers' goods, and not merely to regulate loans, since, as has been pointed out, discounting of the future is present in buying and selling goods just as truly as in making loans.

Extension of the roundabout method of production by greater and greater accumulations of capital is desirable, whether the interest rate be determined by marginal time-preference, by marginal productivity of capital, or by both factors operating jointly. The question may be raised whether this extension may proceed indefinitely. The answer is that in all probability it may proceed with advantage practically indefinitely. True, as indicated in Table XXVIII, marginal productivity of capital becomes nil after a given quantity of hooks and lines per fisherman has been accumulated. Indefinite duplication of industrial equipment of the same kind does not pay. Two hooks and lines can be utilized to better advantage than one, and three to better advantage than two, but a fisherman may get so many hooks and lines that he attends to all of them so hurriedly that most of his fish escape. A more modern example is represented by looms in textile mills. A worker tending two looms is producing more effectively than when tending only one, and when tending three perhaps more effectively than when tending two, but there is a number beyond which he cannot advantageously go. But when marginal productivity of

extra hooks and lines becomes nil, boats and nets may be devised. When the limit is reached in the number of looms of a given kind, bigger and better or more automatic looms may be used. Again, a small number of horses and wagons per man would be all that could be used to advantage in transportation, but a much greater amount of capital would be represented by a railroad and its equipment. So long as inventors devise more elaborate and more automatic industrial equipment, more and more capital can be used advantageously per worker and accumulation may continue with good results.

11. Social significance of saving and lending. We have already shown the relation between the payment of interest and saving and lending. We found that the payment of interest serves as an additional incentive to people to save and lend, and that it also increases the capacity of savers to save by increasing their income. Let us now note more particularly than we have done the social significance of saving and lending. He who saves part of his income — that is, refrains from spending it for consumers' goods — is in a position either to lend to others or to buy producers' goods himself. When he buys man-made producers' goods, such as buildings, machinery, tools, etc., he is encouraging the production of these things and so, by his saving, adding to the industrial equipment of society. When he buys these things and pays cash for them, he is, in effect, trading present goods for future goods, since with the money he could immediately have bought enjoyable goods, but the producers' goods will yield no enjoyable product until some time in the future. The result would be exactly the same if he lent his savings to a business man who used the money to buy producers' goods of the same kind. The other business man in that case would be merely the intermediary through whom the savings found their way to the sellers of the producers' goods. From the social point of view, then, it is a matter of indifference whether the saver invests his savings in his own business or lends them to other business men to invest in theirs.

When he buys land with his savings, he does not, of course, thereby encourage the production of land, since land is not a man-produced good. But he provides the man who sold the land to him with money which may possibly be used to buy man-made pro-

ducers' goods, and thus he may indirectly encourage the production of industrial equipment. If he lends to others so that they may buy land, the same result follows.

If, however, he lends his savings to spendthrift borrowers, his savings are spent for consumers' goods and add nothing to the industrial equipment of society. From the social point of view he might just as well have spent his money himself. But whatever he does with his savings, if he manages wisely, he gets interest. He gets interest whether he lends to producers or to consumers, and he gets interest when he buys producers' goods. Producers' goods always sell at a discount from their own future value because of universal time-preference. If he lends to spendthrift borrowers, he benefits only himself; if he lends to producers or invests in producers' goods himself, he benefits both himself and society. In the latter case he encourages the production of industrial equipment — factories, railroads, store buildings, and stocks of goods — which increases the effectiveness of labor and therefore the total amount of consumers' goods that will eventually be available for consumption.

Loans to Governments may be analyzed in the same way as loans to individuals. If the Governments use the money wisely in the production of improved highways, scientific research, and in other ways that increase the effectiveness of labor and the quantity of goods produced, then the saver's savings benefit society by making it possible for the Government to do these things. If, however, the Government wastes the money received from loans on foolish projects, such as unnecessarily expensive public buildings, then the saver's savings have accomplished no useful public purpose.

Nothing will help us so clearly to realize the importance of saving as to imagine the state of our country if no one had saved anything in the last hundred years. If we in the aggregate had consumed as much as we produced, we should have no more industrial equipment now than we had a hundred years ago — no railroads, no telephones, practically no paved highways, few paved streets, only a few factory buildings, no large cities with their multitude of costly buildings and public improvements. We should not even have houses in which to live, since one must save to accumulate durable consumers' goods, just as truly as to accumulate industrial equipment. Truly saving should be encouraged and spendthrifts should receive scant favors.

12. The rate of interest and the price of land. We are now in a position to understand better the valuation of land, which we discussed in an earlier chapter. The value of an acre of land represents the present value of future benefits to be derived from it. If a business man has reason to think that the land will yield a net return of $5 an acre over all costs of cultivation, he is willing to pay for the land the present value of all the future rentals derived from that land; but these innumerable $5 annual sums are future goods. If the current rate of interest is 5 per cent, then he will "discount" the rent to be received in one year at 5 per cent for one year, and compound discount the rent to be received in two years, three years, and so on, at 5 per cent for the number of years these rents are in the future. All this would mean a lot of figuring, however, and the same results are achieved more simply by what is called the "capitalization of rent" — finding the sum of money which, put at interest at the current rate, would yield the annual rent of the land in question. In our example, the rent is $5 an acre, which represents 5 per cent of $100. The land has a present value, therefore, of $100. Not only land is valued in this way, but many other kinds of income-yielding property, such as shares of stocks, bonds, houses, etc. But whenever the income yielded from some man-made good — such as a factory building with its equipment — is greater than the amount that represents the current rate of interest on money enough to build another one like it, more of such goods are produced until they become so abundant that they tend to yield only the current rate of interest on their cost of production. In other words, the prices of man-made producers' goods, although, like the price of land, depending upon the present value of their future products, cannot in the long run be much above the cost of production.

EXERCISES

1. Explain how time-preference accounts for the demand for loans by producers.
2. Explain what is meant by discounting the value of producers' goods.
3. Explain carefully the terms "gross productivity," "net productivity," "diminishing productivity," and "marginal productivity" of capital.
4. A certain man having a practically worthless tract of land decided to plant it in trees which at the end of approximately twenty-three years would be suitable for making fence posts and telephone poles. He estimated the value of the standing timber at the end of the twenty-three

years at $25,000. The cost of planting, aside from labor costs, was $1000. The rate of interest was 6 per cent. The amount of labor required was 1000 days. How much could he afford to pay his hands per day, if they were to be paid at once? if they were to be paid at the end of twenty-three years? Which method of payment would the hands probably prefer? (The use of a compound interest table will make this problem easy to solve.)

5. In Table XXVIII the various rates of wages that could be paid to fishermen using various numbers of hooks and lines from none up to eight are shown when interest is 100 per cent, and when interest is 50 per cent. Using similar methods, calculate the various rates of wages that could be paid if the rate of interest were 40 per cent. (See footnote on page 472 for the formula required in the calculations. In this case interest = 40 per cent of xy, and not xy as in that footnote.)
6. Would there be interest if there were no time-preference? If there were no capital? Would capital be productive if there were no time-preference? Why, or why not?
7. Suppose that a law were passed forbidding any one either to give or to receive interest in any form, and that the Government undertook rigorously to enforce the law. Would such a law be effective or desirable? Why, or why not?

REFERENCES

I

Carver, T. N. *Distribution of Wealth*, chapter 6.
Davenport, H. J. *Economics of Enterprise*, chapters 18–21.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 36 and 37.
Fisher, I. *Principles of Economics* (1912 edition), chapters 19–23.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, section 217.
Seager, H. R. *Principles of Economics* (1923 edition), chapter 16.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 38–40.

II

Böhm-Bawerk, E. V. *Positive Theory of Capital.*
Cassell, G. *The Nature and Necessity of Interest.*
Fisher, I. *The Rate of Interest.*
Gonner, E. C. K. *Interest and Saving.*

CHAPTER XXV

THE QUALITIES AND QUANTITY OF MONEY

1. The four functions of money. In Chapter III on "Exchange, Value, and Price," it was pointed out why and how money came into use. It was stated that among all the commodities that have at various times been used as money none served the purpose so well as gold and silver, and that gold was finally chosen in all important industrial countries in the world as the one most desirable commodity to serve as standard money. It is our present task to explain why gold and silver have served the purpose of money better than other commodities, why gold was finally chosen as the single standard money, and why other kinds of money are still used along with gold, although inferior to it. In connection with the use of money must be explained also the use of substitutes for money, such as bank checks and their effect on the price system.

The four functions, or uses, of money were enumerated and discussed in Chapter III. But the reader must here be reminded that these four functions of money are to serve (1) as a medium of exchange; (2) as a standard or measure of value; (3) as a standard of deferred payments, or medium of lending; and (4) as a store of value. The best money is the kind of money which on the whole performs these four functions best. To serve any one of these purposes well a commodity must have certain desirable qualities. If it has such qualities that it may serve all four purposes well, it may be said to have all the qualities of good money. Let us consider now, in order, the qualities a commodity must have to serve well each of the four purposes of money, and note in each case how gold compares with oxen, which have also been used as money. If space permitted it would be interesting to compare it also in each case with various other things that have been used as money, such as tobacco, beads made from shells, wheat, etc.

2. Qualities of good money: acceptability and portability. To serve well as a medium of exchange a substance must be generally acceptable. Practically every one must be willing to take it in exchange for the things he has to sell. It must be, then, of such a

nature that practically everybody either wants some of it himself or is sure that he can trade it off at any time to some one else who wants it. Because of its luster and sheen, gold has always been in great demand for use in making ornaments. Even poor people, in spite of its great value, use it in small articles of jewelry. Wealthy people use it not only as jewelry, but also in the form of gold plate, and kings — Tut-Ankh-Amen, for example — have even used it to encrust their thrones and other furniture. People who do not want gold themselves for these purposes are sure that they can readily trade any gold that they have or may acquire to others who do want it for such purposes. Many people think that gold is greatly desired mainly because it is money, and it is true that people do desire gold now because it is money with which they can buy anything else they want. But it is important to remember that gold was first generally desired for other purposes, and would not have come into general use as money if it had not been so desired.

Now oxen at one time were in pretty general demand. They could either be used as beasts of burden, or eaten. But they were not so generally acceptable as gold, and did not serve so well as a medium of exchange.

An article to serve well as a medium of exchange must be portable — that is, light and convenient to carry. Gold is a very heavy metal, but it is so valuable that with a small quantity one can buy much. It has, in other words, great value in small bulk. You can carry enough in your pockets to pay your expenses on a long journey, or, if you are a merchant, enough in a small bag to pay for a large stock of goods. On the other hand, an ox is not so portable. He is harder to carry about than gold of equal value. True, for a short distance he may be made to transport himself, but not for long distances to good advantage.

3. Divisibility and homogeneity. To serve well as a medium of exchange a substance must be capable of being divided into units of various sizes without diminution of its value. It must, in other words, have the quality of divisibility. Gold has this quality, but oxen do not have it. Cut a pound of gold in two, and the two halves are equal in value to the whole, and the division may be carried on practically indefinitely without destroying any part of the value. But an ox cut in two is no longer an ox. His value for eating pur-

poses may be increased thereby, but as a beast of burden he has lost his value. The two halves are not equal to the whole.

Closely related to the quality of divisibility is homogeneity. The substance must be of the same quality throughout, so that any one unit or piece is just like any other unit or piece of the same size. Gold when pure is homogeneous. One pound is just like any other pound the world over, and when the pound is divided into ounces, each ounce is just like any other ounce. The same is not true of oxen. One ox is not like other oxen. In fact it would be hard to find two just alike, and if one is cut in two the two halves are unlike. In this respect gold is superior to oxen. Gold need not be absolutely pure to be homogeneous. It may be nine tenths pure, as is the gold in our gold coins, and still be homogeneous if the metal with which it is mixed is homogeneous. If all units of the substance used as money are not alike and equal in value, then it becomes necessary for buyers and sellers to estimate the value of each particular piece of money used. When gold is used as money a seller knows just what he is being offered when he is offered a standard coin, but when oxen are used no seller knows the value of his offer until he sees the particular ox that is offered, and perhaps not even then.

4. **Cognizability.** It is necessary that a substance should be readily recognized by every one if it is to serve well as a medium of exchange. It must have the quality of cognizability. Otherwise the hesitation of sellers to accept the money offered will obstruct trade, and buyers may defraud sellers by passing off substitutes for real money. In this respect oxen have some advantage over gold in the form of bullion — uncoined gold. Practically any one can recognize an ox, but many would be unable to distinguish pure gold from impure gold or from copper or some other metal. But gold has the quality of ductility which gives it the capacity to receive and retain a stamp. It can, in other words, be coined, and it has become the practice of Governments to coin gold that is to be used as money. A coin is a piece of metal of a definite size and degree of purity, with both the size and the degree of purity attested by the government stamp together with the coinage laws of the country. In order to make it difficult for any one to steal metal from the coin and thus reduce its weight by clipping or abrading, coins are stamped on both sides and milled on the edge. Any mutilation

of the coins thus becomes at once evident and makes it difficult for the mutilator to pass the coins on to innocent parties at full value. People are protected against counterfeit coins made of baser metals both by the difficulty of imitating the government stamp and by severe penalties against counterfeiting. Coinage gives gold a high degree of cognizability, and a gold coin is fully as cognizable as an ox.

5. **Durability and stability of value.** A substance which is likely to lose its value while in the hands of the holder does not make very good money. Good money, then, must have durability and stability of value. Gold is particularly durable because it does not tarnish or rust. It is, however, in its pure state rather soft and subject to wear, and for this reason when gold is coined an alloy is added to harden it and make it more durable. It is said that a gold coin would last with ordinary usage five thousand years. It is obvious that it will far outlast an ox. If a man accepts a gold coin in exchange and keeps it for a year before spending it, it is practically as good as when he got it. An ox might degenerate to some extent through age during that time or even sicken and die. The more perishable a commodity is, the less satisfactory it is for use as money, other things being equal.

A substance may be quite durable and still lose part of its value between the time a man accepts it in exchange and the time he trades it off again. The value of an article, the reader should be reminded, is its power in exchange — the quantity of other things one can get for it. All commodities fluctuate in value with the constant changes in demand and supply, but some fluctuate more rapidly than others. Except when Governments print great quantities of paper money, or banks expand credit, the value of gold changes but slowly because the supply changes but slowly. The supply of gold changes slowly because the supply at any given time represents not merely what has been produced during the last year, but most of what has been produced for hundreds of years. This is because gold is highly durable and a large part of all that has ever been produced is still in use as money. Changes in the amount produced from year to year have relatively little effect on the total supply. The total output per year in recent years has been only three or four per cent of the total quantity in existence. The grad-

ual increase in total supply that results from the annual increments is largely offset by the increase in demand resulting from the growth of the population and wealth of the world. The supply of perishable commodities, on the other hand, must be constantly renewed, and the failure of production during any one year may cut down enormously the total quantity available. The wheat supply, for example, must be renewed each year, practically. A crop failure the world over would produce a scarcity of panic proportions, and even the partial failure of the crop in a single important producing country may cause a scarcity that will double its value per unit.

Oxen in this respect would be better than wheat, since not all oxen produced in a year are consumed in that year, but gold is still better than oxen in the matter of stability of value. The stability of value of gold is sadly affected by the unwise expansion of paper money and bank credit which are used as substitutes for gold, and about which more will be said in later chapters. But such substitutes for money might be used just as well if oxen were the standard money, and the fluctuation in the value of oxen would then be even greater than before. This matter cannot be adequately discussed until we take up the question of the quantity of money.

6. Qualities of a good standard of value. When we come to the subject of the qualities that a commodity must have in order to serve well as a standard or measure of value, we note that the important qualities are homogeneity and stability of value. If we are to measure the value of all things in terms of one commodity, and make a certain amount of that commodity our unit of value, that unit should be an unvarying one. Gold, as has been stated, has homogeneity. When a man says his income is $5000, we know just what he means, 5000 times 23.22 grains of gold. Any lump of pure gold of that size or any $5000 in gold coins would measure exactly his income. But if he said that his income is 100 oxen! Or 5000 bushels of wheat! The 100 oxen that just equaled his income would be hard to find. The 5000 bushels of wheat would be a large income in a year of scarcity, but a small one in a year of abnormally large production.

7. Stability of value important in a standard of deferred payments. The important quality of money used as a standard of deferred payment, or medium of lending, is stability of value. The

money the borrower receives ought to have about the same power in exchange as the money he pays back, not including the interest. If the money used is a commodity that is twice as valuable one year as the next, then the lender may receive in payment only half as much value as he lent. If it is twice as valuable the year the loan is repaid as the year it was made, then the lender gets back twice as much buying power as he lent. Because of its great stability of value gold is superior in this respect to oxen and to most other commodities. It is not necessary that the money used as a standard of deferred payment be durable, since not the same money is paid back that is borrowed. But money used as a store of value should be both stable in value and durable. The miser who buried an ox in his cellar and returned to dig him up twenty years later would not fare so well as the one who buried gold.

8. Why other kinds of money are used, although gold is the best money. From the foregoing discussion it is evident that gold is far superior to oxen as money. If we had used any other commodity than oxen in our comparison, except silver, we should still have found the comparison favorable to gold. Beyond all doubt gold is the best possible money, with the exception of silver. It is precisely because it is the best money that it has come into such general use as the standard money of the world. It has met the pragmatic test. It has worked. It is a case of the survival of the fittest.

If gold is the best money, the question may well be asked, Why is so much money of many other kinds used? To this we reply as follows: In the first place, gold is not the best money for every conceivable purpose, but only the best money for all purposes as a whole. In the second place, men are not always wise enough to recognize what is best, and sometimes make use of inferior substitutes for the superior article because they think it is cheaper, or through pure ignorance. And sometimes poor money is foisted on the whole people by part of the people for selfish reasons.

For various purposes other money serves better than gold. Gold is so valuable that it cannot be used for small change. Even the one-dollar gold piece is so small that it is no longer coined, as being inconvenient to use. Smaller gold coins would be too small to stamp plainly, and would be lost in the crannies of one's purse. Therefore, it is desirable to have coins of a dollar or less made of

silver, nickel, or copper, or other baser metals. As we have those coins in the United States, they do not contain metal equal in value to the face of the coin. They represent, in effect, promises of the United States Government to pay in gold. It is this promise to pay in gold, and the fact that the amount of these coins is strictly limited to the need of trade for small change, that keeps them circulating at face value. Back of these small coins is gold, the master money, and we may think of them as sent out by gold to do little odd jobs it does not care to bother with itself.

For exactly the opposite reason some paper money is used. When large payments are to be made, or large sums carried about, it is more convenient to use bills than coins. A man would have difficulty carrying $100,000 in gold, let alone slipping it into his purse. But $100,000 in large bills can easily be carried in a purse. Paper money such as the various kinds we use in the United States may be put out for various reasons, but it always represents a promise on the part of some one to pay in gold, the standard money, and would not be accepted in exchange if people lost faith in that promise. Before taking up for consideration the various reasons why paper money of various kinds and bank checks are used, we must pause to examine the quantity theory of money and the equation of exchange, or the value of money.

9. The peculiar nature of the price and value of gold. What determines the value of gold? If gold were not used as money, its value would be determined as is that of other commodities. If some other substance were used as money and gold were not, then the value of gold expressed in terms of this substance would be its price. If its price were above costs of production, production would be encouraged; if below, production would be discouraged. As the quantity supplied increased, its price would fall strictly according to the principle of diminishing vendibility, demand remaining the same, and other changes in supply or demand would affect its value just as they affect the values or prices of other articles.

In our analysis of the value of other goods, we have substituted, for value in general, value in terms of gold, or price, as a more precise term and more easily understood. When the price of any article goes up or down considerably, we may assume that its value has changed in the same proportion unless the prices of other com-

modities also have changed. That is to say, if the price of wheat rises from $1 to $2, and the prices of other things, such as coal, sugar, cotton, etc., have not changed, then with the price received for a bushel of wheat I can buy twice as much coal, sugar, cotton, etc., as before. Its power in exchange, or its value, has doubled.

Since gold is the standard of value, it has no price in the sense that other goods have. The price of gold is simply the value of gold expressed in terms of money or gold, so the price of gold is the value of gold in terms of gold, which means nothing at all. There is, however, a so-called "mint price" of gold. According to law, gold is coined into dollars at the rate of $20.67 to one ounce of pure gold. The mint price may be said to be $20.67 an ounce. This is the price of one ounce of gold bullion in terms of gold coins. This price, unlike the prices of other things, remains the same regardless of changes in demand and supply. It is fixed by law. It has nothing to do with the value of gold or the rate at which gold exchanges for other things. If we made our unit of value a dollar of 46.44 grains of gold instead of 23.22 grains, then the mint price of gold would be just half of what it is now — or $10.335 an ounce. An ounce would make only half as many dollars twice as large. But it is likely that each of these large dollars would buy twice as much as the small dollars, so the change in mint price would not affect the value of gold in exchange.

The only way to tell whether the value of gold has changed is to note whether prices of other goods in general have gone up or down. If prices on the average have doubled during a certain period, then we know that it takes twice as much money, or gold, to buy the same quantity of goods as before, and that gold, therefore, is only half as valuable as before. If prices on the average have fallen, then we know that gold has increased in value because with a given amount of it we can buy more than before. Now the value of gold constantly fluctuates — the general level of prices is always going up or down. Sometimes very slowly, sometimes rapidly. Sometimes the period of rising prices is short; sometimes it lasts many years and is followed by a long period of falling prices. To understand the causes of these periods of rising or falling prices, or changes in the value of gold, it is necessary to consider the quantity theory of money and the equation of exchange.

10. The quantity of gold and its value. An increase in the supply of gold affects its value, but not precisely in the way that an increase in other commodities affects their value. That is because of the peculiar nature of the demand for gold as money. To simplify our problem of explaining what determines the value of gold, we must make several assumptions contrary to fact. By making these assumptions we shall be able to bring out the principles more clearly. First, assume that gold is used for no other purpose than as money, and that none of it is hoarded up, but that people with gold use it promptly to buy other things. Second, assume that no other money than gold and no substitutes for money are used. Third, assume that only wheat, wool, and axes are bought and sold, all other goods being made by those who use them, and that all wheat, wool, and axes are sold once for gold. Fourth, assume that the quantity of wool produced in a year is 80,000,000 pounds; of wheat, 200,000,000 bushels; and of axes, 10,000,000, and that each axe is worth two bushels of wheat or four pounds of wool. Last, assume that the gold is in dollars and amounts to just $10,000,000, and that it changes hands on the average once a week. Now, in the light of these assumptions, what would be the value of gold in terms of these other commodities, and how would a change in the supply of gold affect its value?

Since there are $10,000,000 in gold, and each dollar is used fifty-two times in a year, there would be enough money to buy $520,000,000 worth of goods. If the price of wool were $1 a pound, the price of wheat $2 a bushel, and the price of axes $4 each, the gold would be just sufficient to pay for the 80,000,000 pounds, the 200,000,000 bushels, and the 10,000,000 axes:

80,000,000 pounds wool	× $1 =	$80,000,000
200,000,000 bushels wheat	× 2 =	400,000,000
10,000,000 axes	× 4 =	40,000,000
Total		$520,000,000

If prices were lower, then not all the gold would be used in buying commodities. The prices we have given represent the equilibrium prices which just use up all the gold. The value of the gold per dollar is, then, one pound of wool, one half-bushel of wheat, or one fourth of an axe. The simple average price in terms of gold of the three commodities is $2.33.

Suppose now that the quantity of gold is doubled, and the total amount becomes $20,000,000, and that it still circulates fifty-two times a year. There is now enough money to buy $1,040,000,000 worth of goods. Assuming the same ratios as before between the value of wool, wheat, and axes, the prices of these commodities now become $2, $4, and $8 respectively. At these prices their total selling value becomes just $1,040,000,000, or equal to the purchasing power in gold. The average price is now $4.66, or twice the former average. Each dollar is worth just half of what each was worth before. Prices have doubled, and the value of gold per unit as a result has fallen to half. Similar reasoning would show that doubling the supply again would again cut its value in half, and again double average price. Or cutting the gold supply in half would cut prices in half, and double the value of gold per unit.

11. The quantity theory of money. The general principle here illustrated is referred to as the quantity theory of money, which holds that the value of money varies inversely with its quantity. To use a technical phrase defined in an earlier chapter, the elasticity of demand for gold is unity. It might happen that the value per unit or price of some other commodity would decrease exactly in proportion as its supply increased, so that the total value of the supply would always remain the same, but it is rather unlikely that this would happen. The value per unit of other commodities may fall much more rapidly than their supply increases, or less rapidly, depending upon how elastic the demand happens to be. But with the assumptions made above, there can be no other outcome in the case of gold. The total supply will always exchange for the total quantity of commodities sold for gold; the total value will therefore remain the same, and the value per unit decrease as the supply increases.

The conditions assumed above are, however, entirely artificial. Gold is used for other purposes than money and other kinds of money and substitutes for money are used in buying goods. Some gold is hoarded up, and some is not used promptly in buying goods. Many different commodities are bought and sold; the quantity of commodities varies from time to time; and some are sold not once only, but several times in the course of a season. Finally, gold may circulate more rapidly at some times than others. It would seem that all these facts would tend to invalidate any conclusion drawn from the artificial conditions assumed.

12. The equation of exchange. They do in fact invalidate the conclusion that prices vary directly with the quantity of money. In that crude form the quantity theory of money is not sound. Nevertheless, there is much truth in it — prices do tend to vary with the quantity of money. Why this is true can be explained by means of what Irving Fisher calls the equation of exchange, which he writes thus:

$$MV + M'V' = PT$$

The equation of exchange represents the same general principle represented by the crude quantity theory of money, but takes into consideration actual business conditions, which in the preceding sections were left out of consideration. In the equation above, M stands for money; V for velocity of circulation of money; M' for credit, or, more precisely, bank deposits subject to check; V', for velocity of circulation of these bank deposits; P for average prices; and T for the physical volume of trade. In this equation we have largely got away from artificial conditions. We do not assume that all gold is used for money nor that no other money than gold is used. We bring in with M' the use of bank checks, by means of which most buying now is done. With V and V' we make allowance for varying promptness with which people spend their money or write checks against their deposits in the bank. Our T represents all commodities bought and sold and all the number of times each unit is bought and sold.

In plain English then, the equation reads: The quantity of money times its velocity of circulation plus the quantity of bank deposits subject to check times their velocity of circulation equals the average price times the total number of units of commodities sold, counting each unit once for every time it is bought and sold. There is no doubt about the truth of this statement. It is as true as that 2 times 2 is 4. It is as true as that the total sum spent by buyers is equal to the total sum received by the sellers from whom they buy.

13. Relation between money and bank deposits. But the student may ask, What does it show about the value of money? More than one might think. Suppose, for example, we start with a given quantity of money, let us say, $100,000,000, circulating 100 times a year; $500,000,000 in bank deposits subject to check, circulating 20

times a year, and a physical volume of trade of 2,000,000,000 units — what would be the price level? Substituting these figures in the place of the letters in the equation of exchange we should have:

$$\$100,000,000 \times 100 + \$500,000,000 \times 20 =$$
$$2,000,000,000 \times \text{Average Price; or } \$20,000,000,000 =$$
$$2,000,000,000 \times \text{Average Price; or Average Price} = \$10$$

Suppose now the supply of money to be doubled, what would be likely to happen as a result to the other factors in our equation? There is no good reason for thinking that the dollars would circulate only half as rapidly as before. People with twice as much money as before would be likely to spend about twice as many dollars, and the individual dollars for this reason would probably not circulate any more or less rapidly than before. V in our equation would then tend to remain the same, 100. Bank deposits, however, for reasons we can explain better later, tend to bear a rather fixed ratio to money. In brief, this is because banks must keep a certain minimum cash reserve against deposits — a minimum fixed either by law or by banking custom. But above this minimum banks are not likely to keep much reserve, because excessive reserves cut down their profits. Therefore, when money doubles in quantity we may expect deposits subject to check to double also, approximately.[1] But there would be no reason to think that people would draw out a larger percentage of their bank deposits than before during a given period. V' would tend to remain the same. T, or the physical volume of trade, would not likely be much affected. About the same number of commodities would be produced per year as before, and they would tend to change hands about the same number of times. Increasing the gold supply has no necessary direct effect on the quantity of wool, wheat, or axes produced. If all this is true, then the average price would tend to rise exactly in proportion to the increase in the money supply, as may be seen if we put the figures given once more in the form of an equation:

$$\$200,000,000 \times 100 + \$1,000,000,000 \times 20 =$$
$$2,000,000,000 \times \text{Average Price; or } \$40,000,000,000 =$$
$$2,000,000,000 \times \text{Average Price; or Average Price} = \$20$$

Doubling the amount of money, therefore, tends to double prices.

[1] On the relation between money and bank deposits, and between bank deposits and the level of prices more will be said in chapters 28–30.

14. Doubling the quantity of money tends to double prices, but does not necessarily double them. But it should be noted that this is only a tendency. If the spending habits of the people change, if banking customs or laws change, if the quantity of commodities produced changes, or if there is a change in the number of times each unit of commodities changes hands, then the price level will not change in proportion to the change in the money supply. But it is

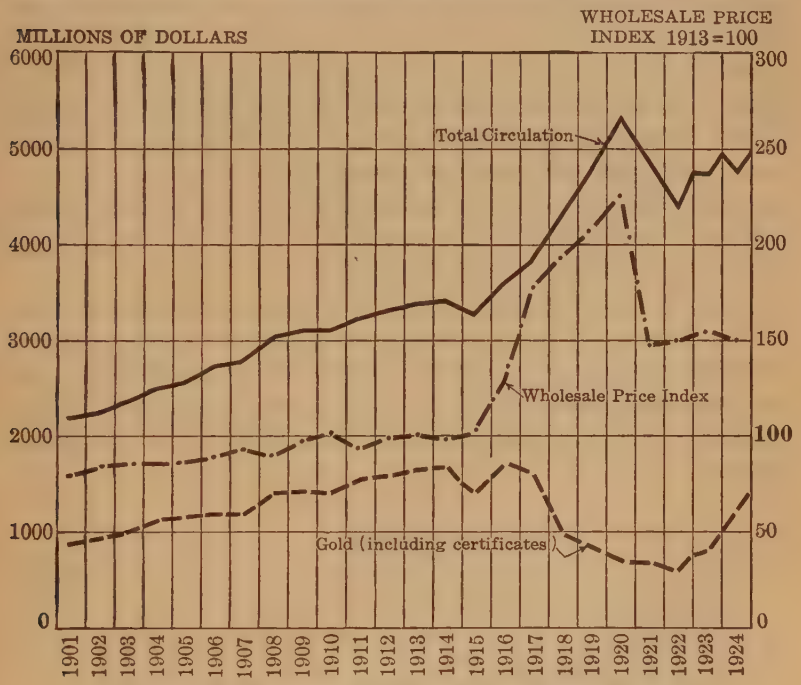


FIGURE 10. MONEY AND PRICES IN THE UNITED STATES
(From *Commerce Yearbook*, 1924, p. 449)

a very strong tendency and is offset only by important changes in these other factors. A study of the history of prices shows a close correspondence between changes in the money supply and prices. During those periods in history when the gold supply greatly increased, as around 1850 to 1870 and from 1896 to 1914, the general level of prices in the world rose. In earlier days, when silver was widely used as standard money, increases in the silver supply as well as increases in gold supply raised prices, as during

the sixteenth century. More recently, during the World War and after, we have had a remarkable example of the effect on prices of a vast increase in the paper-money supply — a cheap substitute for gold. There is a limit, however, to the extent that paper money can raise prices. If too much is printed, people lose confidence in the power of the Government that prints it to redeem it in gold, and refuse to accept it in exchange. It then disappears from circulation leaving only metallic money in use, and this forces prices once more back to a lower level. This happened recently in Germany, where prices fell back to a moderate level expressed in terms of gold after having risen to fantastic levels in terms of government paper money. In fact, we may say that paper money of various kinds and bank deposits, are dependent upon the amount of gold (or silver, in silver-standard countries), and this tends to keep prices more or less in conformity not only with changes in the total money supply, but with changes in the gold money supply.

Figure 10, showing the total amount of money in circulation in the United States, the total amount of gold, and the average level of wholesale prices from 1901 to 1924, illustrates clearly the close relation between the quantity of money and prices. The price curve, it should be noted, expresses prices as percentages of the 1913 price level.

EXERCISES

1. Compare the relative advantages of copper and leaf tobacco as a medium of exchange; as a standard of value.
2. Since gold is our standard of value it has no price in the sense that other commodities have. Explain.
3. How, if at all, would the following affect (*a*) the value of gold and (*b*) the price of gold?
   (*a*) A large increase in gold production.
   (*b*) The printing of a great quantity of paper money.
   (*c*) An act of Congress doubling the size of the gold dollar.
   (*d*) A great expansion of production of other commodities.
4. State the quantity theory of money; the equation of exchange.

REFERENCES

I

Edie, L. D. *Economics: Principles and Problems,* chapter 25.
Fisher, I. *Principles of Economics* (1912 edition), chapters 8 and 9.
Moulton, H. G. *Money and Banking,* part I, sections 149 and 150.

Taussig, F. W. *Principles of Economics* (1921 edition), chapters 17 and 18.
White, H. *Money and Banking* (1911 edition), book I, chapters 1 and 2.

II

Anderson, B. M. *The Value of Money.*
Fisher, I. *The Purchasing Power of Money.*
Foster, W. F., and Catchings, W. *Money.*

CHAPTER XXVI

SILVER MONEY IN THE UNITED STATES

1. The Coinage Law of 1792 provided for free coinage of both silver and gold. In the preceding chapter it was pointed out that gold is clearly superior to all other commodities except silver for use as standard money. But silver would serve all the purposes of money almost equally well, if not quite as well as gold. It is less portable, and less beautiful because it tarnishes, but in other respects its qualities are not inferior to those of gold. Some have held that it has less stability of value, but no clear case can be made out to support this contention. Why, then, has silver in most countries been dropped as standard money and made to serve only in subsidiary capacity? We can answer that question by giving a brief sketch of the history of silver money in the United States.

When our coinage system was established in 1792, gold and silver had long been used together in European countries as standard money, under what is called the system of bimetallism. Both metals were freely coined into coins of the same or similar names and denominations. Naturally the silver coins were larger than gold coins of the same denomination, since silver has always been cheaper than gold. For example, when one ounce of gold was as valuable as fifteen ounces of silver, a silver coin had to contain fifteen times as much silver as a gold coin of the same denomination contained of gold. If it did not, it was worth less and people preferred the gold coin.

In our coinage system we followed the example set by older countries, and started out with both gold and silver as standard money. Our unit of value was called the dollar, and was to consist either of 24.75 grains of pure gold or 371.25 grains of pure silver. The silver dollar, in other words, was made just fifteen times as heavy as the gold dollar, because at that time gold was worth on the open metal market about fifteen times as much as silver. The law provided that any one who had gold or silver could bring it to the government mint and have it coined into dollars and receive these dollars in return for his metal. The coins contained a small amount of alloy in

addition to the gold and silver in them, to make them harder and more capable of standing wear. When any one can take any quantity of a metal to the government mint and have it coined into money for himself, either free of charge or for the small charge that merely covers cost of coinage, we have what is called free coinage of that metal. We had, then, to begin with, free coinage of both silver and gold in the United States. Not only could both gold and silver be freely coined, but both the gold dollar and the silver dollar were made legal tender for the payment of debts. Money is legal tender when a creditor must accept it in payment for a debt at face value unless he has expressly contracted for payment in some other kind of money. In addition to the gold dollar and the silver dollar, smaller silver coins and larger gold coins were provided for, as a matter of convenience in trade.

2. **Why gold was not taken to the mint.** Although gold, under the law, could be freely coined, nobody took any gold to the mint for coinage into dollars. The market ratio between gold and silver was 15.5 to 1, while the mint ratio was 15 to 1; that is to say, on the open metal market any one with one ounce of gold could trade it for 15.5 ounces of silver. Under such circumstances, no one would take gold to the mint. Whoever had gold would trade it for silver and take the silver to be coined. Suppose, for example, that a man had 100 ounces of gold. This could be coined into exactly the same number of dollars as 1500 ounces of silver. But if he traded his 100 ounces of gold bullion on the open market for 1550 ounces of silver, he could then get more silver dollars for his silver than gold dollars for his gold. And by law the silver dollars were just as good as the gold. It was a money-losing proposition to take gold to the mint. In actual practice the country had not a double standard of silver and gold, but silver alone. Under the circumstances silver was said to be overvalued at the mint and gold undervalued. In such cases the overvalued metal drives the undervalued one out of circulation. Even if some one were foolish enough to take the undervalued metal to the mint and have it coined into dollars, some one else would soon melt these dollars down, trade the metal for the cheaper metal — in this particular case, silver — and take that to the mint for coinage, and thus make a gain.

3. **New silver coins victims of Gresham's Law.** Because of an-

other complication even our silver dollars were but little used. Foreign coins, mainly Mexican silver dollars, were in circulation in the United States and generally accepted in exchange. They were lighter in weight than our own new dollars, and drove the better coin out of circulation. Poor money, if there is enough of it, always tends to drive the good money out of circulation, because people pass the poor money on in trade, but hoard the good money, or use it to pay debts outside the country, or melt it down for bullion, to be used in the arts. This principle is referred to as Gresham's Law, because Sir Thomas Gresham, in the sixteenth century, called public attention to the fact that the cheaper money drives the dearer money out of circulation.

4. The mint ratio changed to 16 to 1 in 1834. In 1834, Congress changed the mint ratio from 15 to 1 to 16 to 1, by reducing the weight of the gold dollar to 23.2 grains, leaving the silver dollar the same as before. This was for the purpose of bringing gold back into circulation. But since the market ratio still happened to be about 15.5 to 1, Congress by this act overvalued gold as much as it before overvalued silver. It now paid to take gold to the mint, but not silver. For example, with 100 ounces of gold one could get just as many dollars at the mint as with 1600 ounces of silver. Suppose, now, a man had had 1600 ounces of silver that he wanted to turn into money. He could have traded 1550 of these 1600 ounces of silver on the market for 100 ounces of gold, and have taken the gold to the mint instead of silver. He would thus have saved 50 ounces of silver. In 1837, a very slight change was made in the weight of the gold dollar, making it 23.22 grains of pure gold, just as it is today. Legally the country still had bimetallism, but in actual practice it was on a gold standard. Gold circulated. Silver coins became scarce, and finally disappeared.

5. Subsidiary Coinage Act of 1853. The complete disappearance of silver coins was hastened by the increase in the gold supply resulting from the gold discoveries in California in 1848. Since it was difficult to carry on trade without small change, Congress in 1853 authorized the coinage of silver half-dollars, quarters, and dimes so light in weight that it would pay no one to melt them down for the silver in them. Two silver half-dollars thereafter contained only 345.6 grains of pure silver instead of 371.25 grains as before.

For these small coins, but not for the silver dollar, the mint ratio was in fact reduced below 15 to 1, or below the market ratio. But the mints were not thrown open to the free coinage of these coins at that ratio, otherwise silver would have been presented in great quantities and gold would have disappeared from circulation. Instead, free coinage of these small coins was stopped. Congress authorized the mint to buy at the market price as much silver as was necessary to coin enough small silver for the needs of trade. To avoid the danger of too many of these coins being minted, they were made legal tender only for a limited amount, now $10.

6. Dropping the silver dollar — "the crime of 1873." In 1873, in a revision of the coinage laws of the United States, the silver dollar was dropped from the list of authorized coins. It did not appear at the time that this was an important matter. Since 1834 no one had found it desirable to offer silver to be coined into dollars, and most people had forgotten about the existence of such a coin as the silver dollar. But since the small silver coins could not be freely coined, dropping the silver dollar brought an end to the free coinage of silver, and legally as well as in practice bimetallism no longer existed. At that particular time the country was on a paper-money basis, as a result of the Civil War. But a few years later, in 1879, specie payment was resumed, gold came back into circulation, and since that time our country has been on a gold-money basis. This act of Congress, to which few paid any attention in 1873, soon became a matter of violent controversy, and was later called "the crime of 1873" on the assumption that it represented a conspiracy to abolish free coinage of silver secretly by persons having a selfish interest in securing the gold standard.

7. Reasons for the free silver controversy. The reason why the Act of 1873 became a matter of controversy was a long-continued fall in prices that began with the money crisis of 1873 and lasted with temporary interruptions until 1896.[1] The fall in prices was caused by a combination of factors. Gold production did not keep pace with the enormous increase the world over in production of other commodities — this increase resulting from the spread of the Industrial Revolution and the opening-up of vast areas of new agri-

[1] This refers to gold prices. Greenback, or paper money prices, began to decline in 1865.

cultural land by improved methods of transportation. At the same time several countries in Europe closed their mints to the free coinage of silver — Germany in 1871; France, Switzerland, Belgium, Italy, and Greece a little later. England had taken the same step much earlier, in 1816. India followed suit in 1893. In line with what might be expected from a study of the quantity theory of money, prices fell. There was not enough money being coined in the world at large or in the United States to maintain the old level of prices. If there had still been free coinage of silver, prices would probably not have fallen, since silver production during this period, owing to discoveries of rich new mines, was mounting by leaps and bounds. From an annual average of 63,000,000 ounces in the period 1871–75, world production of silver rose to an average of 158,000,000 ounces in the five year period of 1891–95. If the mints had been open to silver, the extra demand for the metal would doubtless have caused an even greater expansion in output. If this flood of silver had poured into the mints, it would probably have stemmed the fall in prices, and might have caused a rise in prices.

Silver having been widely barred from free coinage and production of silver having enormously increased, the price of silver fell. The market ratio of silver to gold in 1873 was 16 to 1. In 1896, it was 32 to 1. Expressed in terms of gold dollars the market price of silver fell in that period of twenty-three years from $1.29 an ounce to $0.64 an ounce. The abundance and the low price of silver on the one hand and the falling price level on the other led to a strong political movement in favor of restoring free coinage of silver at the old ratio of 16 to 1.

8. Sources of support for the free silver campaign. The campaign for the restoration of free coinage of silver gained support from various sources, and illustrates admirably the possible political effects of unsound economic theory. Obviously the silver-mine operators and other people benefiting from the prosperity of the silver mines would support such a movement because of the great additional market it would open for silver. Free and unlimited coinage of silver meant an unlimited market for silver bullion. All people, too, who hold the naïve view that more money in a country means better times would support any movement in favor of more money, and people who hold this view form a considerable proportion of the

population. They reason in this wise: With money a man can buy everything he wants if only he has enough of it. The more money there is in the country, the more everybody is likely to have, and the more things he can buy. They forget that more money means higher prices, and at the higher prices the larger quantity of money will buy no more than the smaller quantity would buy before. They forget that bread and meat and suits of clothes are not products of the government mint or the printing-press, but of the farms and factories, and farms and factories are not increased merely by an increase in the quantity of money.

People who are hard-pressed financially and must borrow money at high rates of interest also frequently believe that they could borrow at lower interest rates if money were more abundant. They forget that the rate of interest is a premium on present goods in terms of future goods, and that increasing the money supply neither increases the quantity of present goods in general nor changes the marginal time-preference of the people, which determines the interest rate. For a short time a large addition to the supply of money may depress the interest rate if it finds its way into banks which offer it at a low rate to increase their loans, but soon the increase in money brings its natural result, a rise in general prices, and an increase in the amount of money the borrower must have to buy a given quantity of present goods. In short, doubling the money supply may double the amount of money offered in loans, but since it also doubles prices, it doubles the amount of money demanded in loans, and leaves the relation between supply and demand of loans the same. During the period of increasing money supply and rising prices that follow, it may happen that the rate of interest actually rises. If the rise in prices is a persistent one, lenders and borrowers may perceive that borrowing pays because the goods that one buys with the money increase in value or selling price during the period of the loan, whereas the debt remains the same. A borrower can then sell the goods when the loan expires for more than he paid for them, pay back the loan with part of the proceeds, and keep the rest as profit. For example: A house is worth $5000 to-day. Last year it sold for $4000. Next year it may be expected to sell for $6000. It pays, therefore, to borrow $5000 to buy the house, hold it a year, sell it for $6000, pay off the loan, and pocket the difference.

The debtor gets the use of the house for nothing and has money left over, if he gets the loan for less interest than $1000, or 20 per cent. Naturally under such circumstances lenders prefer buying property themselves to lending money, borrowers become doubly eager to borrow, and the rate of interest tends to rise. If it should rise to the full logical extent, it would rise as much above the regular time-preference rate as would be necessary to offset the anticipated annual decrease in the value of money or increase in prices of property. In Germany under the recent paper-money debauch, the interest rate rose to above 100 per cent. Unless the interest rate does so increase, the lenders do not get back a premium on the present goods lent — that is, not an actual premium in buying power. In our example the man who lent the $5000, in effect lent the price of the house, but he got back only five sixths of enough to pay for the house a year later, when its price had risen to $6000. To net 6 per cent in pure interest he should have got back in contract interest and principal 106 per cent of 120 per cent of $5000, or $6360, which would be just 106 per cent of the price of the house at the end of the year. People who expect an increase in the money supply to reduce the rate of interest are sure to be disappointed. For a short time only the rate may fall, until prices begin to rise persistently. Then the rate will rise, as indicated, above the time-preference level. Eventually, when the increase in the supply of money comes to an end and prices cease rising further, the old time-preference level will tend to be reëstablished. Nevertheless, any campaign to increase the quantity of money in a country is likely to gain support from many persons who believe that more money means lower interest.

9. Debtors stood to gain by free coinage of silver and more money. There are two classes of people in a community that do benefit from an increase in the money supply which raises prices. These are debtors as a class and business men. Debtors benefit since they have already contracted debts and have promised to pay interest at a stipulated rate for a period of years, and the principal some years hence. We can illustrate this by the case of a farmer who has bought a farm for $10,000, paying for it with $5000 of his own money and $5000 borrowed on a mortgage on the farm at 8 per cent. Suppose this is a wheat farmer and that the price of wheat under the old price level runs about $.50 a bushel. He must then

sell 800 bushels of wheat every year to pay the annual interest of $400, and finally, to pay off the loan, 10,000 bushels in addition. If, now, prices double because of an increase in money, and the price of wheat doubles, he must sell only 400 bushels a year to pay the interest, and 5000 bushels in addition to pay off the loan. If, before the rise in prices, his total expenses per year had been $1100 in addition to the $400 interest on his loan, and his wheat crop had been 3000 bushels worth $1500, he would just have been breaking even. After the doubling of prices, his expenses other than interest would have doubled and the price of wheat would have doubled. His total expenses would then be $2200 plus the $400 interest payment, or $2600. His crop would be worth $3000. He would be making a clear gain of $400 a year as a result of the rise in prices.

Suppose that he did not pay off the loan at maturity out of income from the farm, but sold enough of the land to pay the loan. We may assume that the price of the farm has doubled along with other prices, and that it is now worth $20,000 instead of $10,000 as before.[1] The debtor must now sell only one fourth of his farm to pay off the loan that paid for half his farm before. In other words, before prices rose, the lender in effect owned half the farm and the debtor half, but after the rise in prices, the lender owned one fourth and the debtor three fourths.

During the period of falling prices and the campaign for free silver, a large proportion of our farmers, particularly in the South and West, were in debt much as the farmer in our example, and stood to gain from a restoration of free silver. Consequently, they could intelligently support the movement.

10. Why business men may favor more money. Business men stand to gain from a period of rising prices, partly because the prices of some of the things they buy do not generally rise as fast as the prices of the things they sell, and partly because they usually buy before they sell, and during the period that they hold their goods the price increases. Thus they make an extra profit above what they would make in a period of stationary prices. To the extent that business men are doing business on borrowed money, particularly money borrowed at low rates before the rise in prices gets under way, they benefit also as debtors, just as the farmer of our

[1] For the basis of this assumption see Chapters X and XI.

example. Many business men thus support a movement in favor of more money. In a later chapter we shall show why the interests of business men in the end are not always well served by a great rise in prices.

Naturally the interests of the lenders are served better by stationary or falling prices than by rising prices, and bondholders and mortgage holders may oppose an increase in the money supply in their own interest, and so may the working class and salaried men whose incomes increase less than prices. Our main purpose here is to point out the sources of strength of the campaign for free silver that played a prominent part in our political history from the seventies to the end of the century, rather than to present a complete discussion of the effect of rising prices. To summarize, the supporters of this movement included the silver-mine owners and others interested in the silver-mining industry; debtors, particularly the debtor farmers of the West and South; some classes of other business men; and those persons who always believe that more money is a good thing for the country. In addition, there were some who supported the movement because they wanted to help the farmers and others who seemed to be suffering from the period of low prices. Altogether they made a powerful party and they achieved a considerable measure of success.

11. The Silver Purchasing Acts and the Bryan campaigns. In 1878, the free silver Senators and Representatives succeeded in forcing through Congress the Bland-Allison Act, requiring the Government to purchase monthly not less than $2,000,000 nor more than $4,000,000 worth of silver bullion to be coined into silver dollars. This Act remained in force until 1890, when it was superseded by the Sherman Silver Purchasing Act, which remained in force until 1893. Under these two Acts in fifteen years 570,000,000 silver dollars were coined and added to the money supply of the country. These two measures represent the greatest success of the silver party, but do not mark the climax of the free silver campaign. This climax came in 1896, when Bryan, after a famous speech protesting, among other things, against "crucifying mankind on a cross of gold," was nominated for the Presidency by the Democratic Party, which had adopted the free silver issue as its own. After an exciting campaign, during which speakers in favor of free silver spoke feel-

ingly of the free silver millennium, when even small boys would be able joyfully to jingle an ample supply of silver dollars in their pockets, and the specter of hard times would be forever driven from the land by an avalanche of bright new silver dollars rolling across mountains and prairie, Bryan went down to defeat. He raised his head once more in the campaign of 1900, and was again clouted by the "sound money" men with their gold shillalah. His second defeat appears to have ended once for all the free silver movement. The country seems definitely committed to the single gold standard.

12. Why bimetallism was abandoned in the United States. In the United States, then, bimetallism was abandoned mainly because of the difficulty of making it work in practice — of making the mint ratio correspond to the market ratio. It seems to have died a natural death, and simply to have been pronounced dead by the Act of 1873 rather than to have been killed by that Act. Its restoration was opposed later, partly because it was against the interest of many powerful people and partly because all the important countries of Europe had abandoned it — mainly, it seems, because of the practical difficulty of maintaining it in operation. If we had restored the free and unlimited coinage of silver as proposed at the mint ratio of 16 to 1, when the market ratio was about 32 to 1, silver would have poured into our mints not only from our own mines, but from the silver markets of the world, in such great quantities that gold would have been driven from circulation. We should then have been again on a silver basis, but we should not have had bimetallism. Prices would have risen to about twice the level of gold prices and our dollar would have fallen in value about 50 per cent. This would have caused great business disturbances in the country by which some would have been benefited and others injured. Foreign trade would have been disturbed to some extent because we should have had the silver standard while most of the nations with whom we traded had the gold standard.

13. Bimetallism might have been saved with advantage by coöperative action among leading nations. It has been contended that if all the leading industrial countries had coöperated, they could have maintained bimetallism with little trouble. If all had adopted free coinage of both gold and silver at the same mint ratio, a ratio that approximated as closely as possible the market ratio at

the time, then the mint ratio thus adopted would thereafter have controlled the market ratio by the so-called compensatory action of gold and silver. The mints of the world would have offered such a great market for silver or gold at the mint ratio, it is argued, that the open metal market ratio could not have varied materially. If the world mint ratio had been fixed, say at 16 to 1, in the seventies when the market ratio was also 16 to 1, and if the market ratio then had risen to 16.1 to 1, gold coin in large quantities would have been melted down into bullion and traded for silver to be presented at the mints for coinage. This would have increased the supply of gold bullion on the metal market and decreased the supply of silver bullion, which would have forced the ratio back again to 16 to 1. A change in the opposite direction would have been corrected in a similar way. Thus neither metal could have forced the other out of circulation in any country, unless there had been an enormous expansion in the output of the one with no substantial increase in the output of the other. This reasoning seems sound. But the nations did not come together on such a project, and no one nation alone could control the world market ratio by its own mint ratio. If we alone had adopted free coinage of silver in 1896 with a mint ratio overvaluing silver, the silver dollars we coined would have reduced somewhat the silver bullion supply of the world, and the gold coin melted down and exchanged for silver to be coined would have added to the gold bullion supply, but long before this could have brought the market ratio in line with our mint ratio, our country would have been flooded with silver coins and gold would have disappeared from circulation. Without an international agreement one metal had to go. On the whole, gold is somewhat superior, and so it is well that silver and not gold has been discarded.

What would the world have gained by maintaining bimetallism? A somewhat greater degree of stability of prices. Changes in prices follow changes in the quantity of money — the changes in prices tending to be in proportion to the change in the quantity of money. When gold is the only standard money and the only metal freely coined, an increase or decrease in its supply affects prices. If both gold and silver were freely coined, it would be unlikely that the supply of both would increase or decrease at the same time at the same rate. An increase or decrease in the one might be offset by a de-

crease or increase in the other, or, at any rate, its effect modified by a smaller change in the supply of the other. Price changes would then be less abrupt and far-reaching. This would be desirable.

EXERCISES

1. With a market ratio between silver and gold of 15.5 to 1, which metal would under bimetallism be taken to the mint for coinage with the mint ratio 15 to 1; with the mint ratio 16 to 1? Why would not the other metal be taken to the mint?
2. Why did the Coinage Act of 1873 become a subject of bitter controversy in American politics? To what subsequent Coinage Acts did it lead? Give details.
3. Who, if anybody, would be benefited or injured by an Act of Congress reducing the size of the gold dollar from 23.22 grains to 11.61 grains? Why? In what respects, if any, would the free coinage of silver at the mint ratio of 16 to 1 give different results, the market ratio between silver and gold being 32 to 1?
4. Could the United States by itself alone maintain bimetallism at present with a mint ratio of 16 to 1? Why, or why not? Could it maintain bimetallism with a mint ratio of 50 to 1? Why, or why not?
5. Could all the leading nations of the world acting in concert maintain bimetallism at present if they began by making the mint ratio equal to the market ratio, let us say, at 35 to 1? Why, or why not?

REFERENCES

I

Dewey, D. R. *Financial History of the United States* (1915 edition), chapters 17 and 19.
Holdsworth, J. T. *Money and Banking* (1920 edition), chapter 3.
Moulton, H. G. *Money and Banking*, part I, sections 63–68.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 20–21.

II

Laughlin, J. L. *History of Bimetallism in the United States.*
Taussig, F. W. *The Silver Situation in the United States.*

CHAPTER XXVII

GOVERNMENT PAPER MONEY

1. What government paper money is. Government paper money consists of pieces of paper on which are printed promises of the Government to pay the bearer the face value in the standard money of the country or its equivalent. In the United States, for example, government paper money represents the promise of the Government to pay its face value in gold or silver. Since silver money itself is redeemable in gold, the paper money practically represents a promise to pay in gold. People generally refer to paper money as bills — as one-dollar bills, five-dollar bills, etc., and few observe that we have in the United States six kinds of paper money in common circulation. Of these six kinds of paper money or bills, three are government paper money and three are bank notes or bank paper money. The government paper money consists of the gold certificates, the silver certificates, and the United States notes, "greenbacks."[1]

2. Gold and silver certificates. We are less concerned in this chapter with the gold and silver certificates than with the kind of government paper money represented by the greenbacks. Gold certificates are nothing more or less than receipts given to owners of gold who have deposited their gold with the United States Government. Their issue neither increases nor decreases the amount of money in circulation. They circulate in place of the same amount of gold money. The Government is not free to spend the gold which the certificates represent, but must keep all of it to redeem them on demand. In other words, the gold reserve behind the gold certificates is 100 per cent.

The reasons for issuing gold certificates are convenience, economy, and safety. Bankers and others who handle money in large sums can make payments more conveniently in bills of large denominations, say $1000 bills, than in gold coin, and people who want to carry considerable sums of money find the paper bills more con-

[1] In addition there is in circulation a small amount of United States Treasury Notes of 1890.

venient than gold. The use of certificates is economical because it saves wear on gold. Gold handled from day to day loses weight gradually by abrasion, but lying in the vaults of the Treasury it loses no weight. Again, when gold is lost by an individual, it means not only a loss to him individually, but a loss to the country as a whole unless some other individual finds it. But when an individual loses only a gold certificate, the country as a whole is no poorer than before. All that has been lost is the individual's claim to the gold in the Treasury, and what he has lost has been gained by the Government, representing the people as a whole. No part of the total stock of wealth of the country is gone; only a comparatively worthless piece of paper. Gold certificates can be carried about more safely than gold because a man with $100,000 in $1000 bills is likely to attract less attention than one with a bag containing $100,000 in gold coin and is less likely to be waylaid by bandits.

Silver certificates circulate in the place of the silver dollars. Like gold certificates they neither increase nor decrease the money supply of the country but are merely receipts for the metal which they represent. Because of their great weight silver dollars are very unpopular in the eastern part of the United States, and people greatly prefer to carry the silver certificates or other kinds of paper money. West of the Mississippi, for some reason, people do not object to the silver coins, and they circulate freely. In the case of silver certificates the cost of printing the bills largely offsets the saving in the way of wear on the metal; the certificates being in small denominations, great quantities must be printed to represent a comparatively small amount of silver. Since they wear out in a short time, the Government must redeem them with new bills from time to time and has considerable outlays for printing. Gold certificates likewise wear out and must be redeemed with new ones, but since the denominations are from $10 up, the expense per dollar of metal in the Treasury is much less than in the case of silver.

3. **Credit money and fiat money.** Quite different in origin and effect from gold and silver certificates is that kind of government paper money which represents merely a promise of the Government to pay and not an equal amount of gold or silver in the Treasury. Such promises of the Government to pay, when forced into circulation by being made legal tender in payment for debts, are called

"fiat money," from the Latin word, *fiat*, meaning, "let it be done." The Government in effect says of a piece of paper with its promise to pay on it, let it be money, and it is money. If the Government maintains a cash reserve on hand out of which it can redeem any of this money that may be presented for redemption, it is called "credit money." If the people have faith in the financial integrity of their Government, and the Government manages to keep on hand gold enough to redeem this paper money upon demand, it will circulate readily and be generally as acceptable as gold itself. It is not necessary that the Government keep a 100 per cent gold reserve. Possibly 10 per cent would be sufficient so long as confidence prevailed and not more than 10 per cent of the bills were presented for redemption at the same time. So long as the Government redeems such money promptly upon demand, it is called "convertible paper money" — that is to say, it is convertible into gold. But when the Government is unable or unwilling to redeem it upon demand, it is called "inconvertible." The terms "convertible paper money" and "credit money" are synonymous; as are also the terms "fiat money" and "inconvertible paper money."

In the United States we have had two notable experiences with inconvertible government paper money — the first in the days of the Revolutionary War and the Continental Congress, and the second in the Civil War and the years that followed up to 1879.

4. **Why credit money is issued.** Let us note why credit money comes into existence. The primary reason is financial embarrassment of the Government. The secondary reason is that many people believe it is a good thing for the Government to print paper money, and many others see no particular harm that can come from such action. Governments always need money to meet government expenses — salaries of government officials, clerks, special agents, research workers; army and navy expenses; supplies for the various government departments; public buildings, river and harbor improvements, etc. The money to meet all these expenses may be raised by taxation, by borrowing, by government business enterprises, or it may be printed on the government printing-press. To understand now which of these methods is likely to be used, we must remember that the Government consists of a small body of men who either have selected themselves or have been selected by

the rest of the people to govern the country, according to whether the Government is an autocracy or a democracy. In either case the Government — the men in power — try to please the people. Otherwise the people in an autocracy will rebel and begin to chop off government heads, and the people in a democracy will "turn the rascals out" and choose men more to their liking.

Of all methods of courting popularity with the people, taxing them is the worst. Taxation must be kept moderate if the people are to be kept at all satisfied with their Government, and even then resort must be had to such expedients as indirect taxes not perceived to be taxes by those who pay them, or to taxes bearing lightly on those capable of turning the Government out and heavily on those not in a position to cause the Government trouble. All this limits the Government's power to raise money by taxation. But the very people who want taxation kept down want the Government to do many things for them. Most people are indeed inclined to believe that the Government has magic powers by means of which it could make everybody rich if only it were willing to do so. A Government which is not ostentatiously active in making everybody rich is almost in as great danger of becoming unpopular as one that taxes the people heavily. Called upon to do many things for its people, but being unable to pay for all the things to be done by taxation, the Government may borrow. When it borrows, however, it must pay interest on its loans, and as the loans mount up the annual expenditures for interest payments may become as high as or higher than all other expenditures combined, and, besides, the loans must finally be repaid. Borrowing is just a temporary way out of the difficulty. Moreover, when a Government borrows the people grow dissatisfied with it, borrowing, particularly during times of peace, being considered evidence of mismanagement of government affairs. Going into business does the Government little good, since government business is usually not so well managed as to do more than pay expenses, unless the Government has a monopoly, and government monopolies charging high prices for their products may also make the Government unpopular. Such monopolies are recognized by the people as merely another means of taxing them.

Suppose now that the Government, being short of funds to meet

various pressing obligations, and not being in a position to raise more money by taxation, loans, or business operations, resorts to printing promises to pay, making them legal tender, and passes them out in payment to all to whom it owes money. Undoubtedly such a procedure would arouse much opposition and cause dismay in many quarters. But it would meet with favor in other quarters. All that great body of people who believe that the more money there is in a country, the more money everybody has a chance to get — and the more things everybody, therefore, will be able to buy — would shout loud the praises of the Government. All who wanted to borrow money and who thought that increasing the money supply reduces the interest rate would welcome the new government policy. Many who recognized that increasing the money supply means rising prices and who stood to gain from rising prices would be pleased at the prospect. Here would be included debtors as a class and many business men. Many others would approve the new policy of the Government because they were opposed to additional taxes, disapproved of government borrowing at high interest rates, and looked with favor upon all the good things the Government was providing for the people. Many who would inevitably in the near future be injured by the new issues of paper money would gain temporarily from the business boom that rising prices engender, as wage-earners, who in a period of rising prices find more steady employment at higher money wages than before, and they would think well of the Government that brought this prosperity. How they would eventually lose as the result of the rising prices and the business boom that developed as a result can be discussed more conveniently in our chapter on Bank Credit and Business Cycles. There would be few who would suffer immediate injury from the paper-money policy and still fewer who would understand the principles of economics well enough to realize that inevitable disaster overwhelms a country which resorts to the immoderate use of government paper money. In the light of the facts here set down, it is not surprising that Governments have in many countries again and again resorted to the policy of printing paper money to pay their bills. It would in fact be surprising if Governments had not done so.

5. **Apparent advantage of a moderate issue.** Let us now note the logical results that follow from the issue of credit money. If the

amount issued is comparatively small and the Government is able to maintain a gold redemption fund large enough to redeem all notes presented without delay, no serious results need follow. The price level in the country will tend to rise in proportion to the increase in the money supply. The reader should perhaps be reminded that such paper money, unlike gold and silver certificates, actually increases the total money supply in the country by the amount of the issue minus the gold reserve that is kept on hand to redeem it. If, for example, the Government prints $100,000,000 in credit money and sets aside $10,000,000 in gold coin as a redemption fund, and then puts the $100,000,000 of paper in circulation, it has added $90,000,000 net to the money in circulation — having withdrawn $10,000,000 in gold and added $100,000,000 in paper. Once the $100,000,000 in paper has been put in circulation, it may be kept in circulation by the simple expedient of having the Government pay out again each bill it is called upon to redeem in gold. It can maintain the gold redemption fund at $10,000,000 by adding to it, whenever it falls below that sum, gold collected in taxes, which it would pay out in salaries, etc., if it did not pay out the paper money instead. If the issue is kept down to moderate size, as just stated, nothing serious need happen. It might even be argued that the policy has been wise, since the Government in effect has paid for $100,000,000 of goods and services at an expense of a small amount for printing and $10,000,000 in gold tied up in the redemption fund. It seems to have gained practically $90,000,000 by the transaction. To be sure, it has promised to pay the holders of the paper money in gold, and therefore owes $100,000,000. But so long as it reissues the paper money as often as it is redeemed, it can keep on owing that sum. The Government pays no interest to the holders of the notes, so in effect it has a loan of $90,000,000 without interest until it chooses to redeem the paper money and destroy it. If the Government had borrowed $90,000,000 at 5 per cent it would have annual interest payments of $4,500,000 to make. As a financial device of the Government such an issue of paper money might be considered a good thing.

In the foregoing example of the issue of a moderate amount of credit money — $100,000,000 — the Government seems to have gained to the extent of saving the interest on a loan amounting to

the difference between the $100,000,000 and the cash reserve of $10,000,000, or $4,500,000 a year with interest at 5 per cent, or the people have been saved taxes amounting to $90,000,000, one or the other. A moderate rise in prices might have followed the issue of the paper money and the consequent increase in the total money supply. Nobody seems to have lost. A net gain seems to have been realized — something for nothing.

6. A real net gain is possible from a moderate issue. Have the people of the country really gained thereby? It is obvious that merely printing $100,000,000 in paper money has added to the quantity of neither producers' goods nor consumers' goods in the country. The gain is an imaginary one — fictitious. If the people as a whole had paid more taxes to the Government in the form of gold, they would have got back gold from the Government instead of paper money or promises to pay gold. If the people had lent money to the Government, they would have received interest-bearing promises to pay, not non-interest-bearing promises to pay, and the Government would have met its payments with cash, not with promises to pay. On the whole, our analysis up to this point indicates that nothing has been either gained or lost in this case by the issue of paper money.

There is, however, a possibility that the issue of paper money may bring a net gain to the people of the country that issues the money. Suppose that in the United States the price level is raised by the addition of $100,000,000 of paper money. This increase in the price level makes this country a better country in which to sell goods and a worse country in which to buy goods than before. As a consequence imports of goods increase and exports decline to some extent. If before the change we had just managed to pay for all the goods and services which we bought from other countries with the goods and services which we sold to them, then there would have been no balance to be paid in money either way. Now, suppose after the rise in prices in this country and the consequent increase in imports and decline in exports, we should have an unfavorable balance of trade to be paid for, as such balances are in practice, in gold, and suppose that the unfavorable balance continues until we have paid out $80,000,000 in gold, at which time our loss in gold and other countries' gain in gold would, let us assume, have restored the for-

mer relation of prices and brought an end to the unfavorable balance of trade.

What, now, would have been the net result? We should have less gold by $80,000,000 than before, and $80,000,000 worth more of other goods than we should otherwise have had, that sum measuring the value of our decrease in goods shipped out of the country plus the increase in the value of the goods shipped in. But in place of the gold we shipped out we should have the government paper money, which, so long as people accept it readily, serves the purposes of a medium of exchange within the country just as well as gold. It might well be argued that here is a net gain. It is true we have no more actual goods, including gold, in the country because of the issue of the paper money, but for some of our gold we have substituted paper, which serves as well as gold as a medium of exchange, and for the gold we got $80,000,000 worth of consumers' and producers' goods.

From another point of view, too, there appears to be a net gain possible. The increase in prices that results from the paper money naturally means a decline in the value of gold. Gold-mine operators' expenses of mining would rise and it would become unprofitable to operate some low-grade mines. This would cause these mines to be closed and the labor and materials used up in mining gold would be devoted to the production of other goods. We should then have less gold produced, but more other goods. But our paper money would serve as a medium of exchange as well as the gold that would have been mined, and we should have the additional other goods as a net gain resulting from the issue of paper money. It may be observed that the gain in our first case could be realized not by all countries, but only by those that exported gold. And the gain in the second case could be realized only by countries which were gold producers and reduced the amount of labor they devoted to mining gold. Apparently a case has been made out in favor of printing government paper money in moderate amounts. But we must note that we have been assuming there is a gain to be realized only if the paper money serves the purpose of a medium of exchange as well as the gold money for which it is substituted. Let us inquire further into the probable results of the resort to government paper money.

7. Government paper money breeds more paper money. Once a Government has begun the policy of issuing credit money, it is hard to stop with a moderate quantity. The rising prices brought by the additions to the money supply foster a business boom, rising interest rates, and in general a greater demand for money. Furthermore, the Government itself finds its expenses rising with the rising prices, and this puts it under pressure to issue still more paper money, which will still further raise prices, and so on over and over. Special beneficiaries of rising prices bring their influence to bear to keep the printing-presses at work. Government officials themselves, observing their own power over the course of prices, may buy commodities for speculation on borrowed money and then issue more government money to make their commodities rise in price to their own profit. In short, once the printing-presses are started, they are hard to stop and gain momentum as they run.

8. Results of immoderate issues of government paper money. Let us see now what is likely to be the natural result of immoderate issues of paper money. The great rise in prices that follows the great increase in the total supply of money stimulates imports into the country and checks exports, for reasons already stated — the country becomes a good country in which to sell and a poor one in which to buy. The excess of imports eventually tends to be paid for in gold, not paper money, since the paper money is not likely to be accepted in exchange outside the country, particularly if there is any reason to distrust it. Gold is, therefore, gradually driven out of the country. If the issue of paper money continues, gold soon practically disappears from circulation, having either been exported or hoarded up by people who foresee financial trouble ahead. After considerable gold has been exported, the Government begins to have difficulty in keeping up the redemption of its paper money, being able to collect little gold from the people in taxes. Once this difficulty becomes known, confidence in the redemption of the paper money wanes and what gold is left in the country is hoarded against the time when the paper money depreciates in value. Hoarding of gold brings an end to the power of the Government to redeem its paper money in gold, and the country sinks to a paper money basis — prices no longer mean a certain quantity of gold, but merely *promises* of the Government to pay that quantity of gold. The

credit money, or convertible paper money, thus naturally degenerates into fiat money, or inconvertible paper money. How high prices will go after gold disappears depends upon the amount of paper money issued — and the degree of confidence still left in the paper. So long as it is generally accepted in exchange, prices tend to rise in proportion to the additional quantities issued. If the printing presses keep on turning it out more and more rapidly, as is likely to be the case, it becomes evident to all thinking persons that the Government will never be able to redeem its money at face value, and that it may never redeem it at all, and that its value as money must grow less and less with every increase in quantity. Now money which is gradually and surely becoming worth less and less per unit is in danger of being refused in exchange for goods. If people do accept it, they hurriedly get rid of it again by buying anything they need or even things they do not need. People with goods to sell try to anticipate the inevitable rise in price and decline in the value of money by asking fantastic prices, so that buyers never seem to have enough money for their needs, and this leads to a clamor for still more money. The money in fact falls in value more rapidly than it increases in quantity, and there is an actual shortage. Speculation runs wild, since no matter how high the current price may be, a higher price will soon be offered. To save money becomes foolish, since the longer one keeps it the less it will buy. To lend it is equally foolish, since what one gets back is only a fraction of what one lent, unless one gets 100 per cent on his loan, or more. Even to work for salary or wages becomes foolish, since the amount of money one agrees to work for buys practically nothing when one gets it — prices rise so fast and salaries and wages so slowly. Eventually people refuse to accept the worthless paper any longer as money, and having no other money to use in exchange resort to trade by barter. The final chapter of the story is then written — the Government repudiates, confesses its inability to redeem its paper, and acknowledges its own bankruptcy.

9. Robbing Peter to pay Paul. Now what has been gained by this process? Some men have grown rich. Business men constantly on the alert to take advantage of the rising prices by buying cheap and selling dear, or rather by buying high and selling higher, make huge gains, particularly if they borrow boldly on a large scale and

pay later in money worth only half as much as the money they borrowed. If the rising prices continue over a period of several years, such men, by pyramiding their gains, can manage to become fabulously wealthy, being careful always to keep their gains in the form of substantial property — land, factories, mines, etc., all heavily mortgaged, and not in money, mortgages, or bonds. Government officials or their friends or confidants are in a position to speculate safely in this way because they know in advance of others how fast and far the rise in prices is likely to go. Debtors benefit, since they may pay off long-standing debts in practically worthless paper — some who were on the verge of ruin emerging with great fortunes.

But all that these have gained, and more, others have lost. Every person loses who holds bonds, mortgages, or other promises to pay in money — the savings of a lifetime may be swept away by the fall in the value of money. Whoever holds money itself for any considerable period of time loses part of its value. Wage-earners lose, because the cost of living rises more rapidly than wages. Salaried workers lose even more than wage-earners, because salaries are more fixed than wages. All persons lose who are living on more or less fixed incomes in terms of money, as the purchasing power of their incomes declines. Beneficiaries of insurance policies lose. The insurance, which a man expected to keep his dependents in comfort, may not pay his funeral expenses.

When the inevitable smash comes, business is disorganized. Factories close. Workmen out of work, and facing starvation, bring the danger of political revolution. Business failures occur on wholesale scale. Banks temporarily suspend. The plight of a country after such a paper-money spree reminds one of the sad condition of a drunkard the morning after. Recovery from the collapse is slow. It may take years to restore prosperity and a sound monetary system.

10. Fiat money most commonly issued under stress of war. We may conclude that the issue of government credit money is a lapse from the straight and narrow way by Governments and is likely to bring weeping and wailing and gnashing of teeth. It is in time of war that such lapses are most likely to occur, for it is then that government expenditures are greatest and the need for means of payment most pressing. Military necessity is the excuse for many

blunders. Who can oppose the printing of paper money if it is done in the name of Liberty, or for *Gott und Kaiser*, or for Humanity? Our own Government issued inconvertible paper money in the Revolutionary War, and again in the Civil War. In the first case virtual repudiation followed. In the second, the total amount issued was so moderate that redemption remained possible. Of the $450,000,000 of greenbacks issued during the Civil War, part were later redeemed at full value, and the rest were kept in circulation as a concession to the cheap-money party that wanted free silver. Against the $346,000,000 of greenbacks still outstanding an ample gold reserve is maintained, and nobody doubts the ability of the Government to redeem these notes on demand.

During the World War our Government did not resort to the issue of government credit money, but it did encourage an enormous expansion of bank credit with somewhat similar although less dangerous results. All the other countries involved in the World War did, however, resort to the issue of paper money either directly or through government-controlled banks. In Russia, Germany, Austria, and others expansion went on to virtual repudiation. In France, Italy, and England, and others, expansion was checked short of the stage making virtual repudiation necessary, but not short of the stage that makes redemption at face value improbable in some cases.

EXERCISES

1. Name and distinguish from one another three kinds of government paper money in use in the United States.
2. What are the reasons for the issue of gold certificates? of credit money? of so much credit money that it becomes inconvertible?
3. Colonel Sellers, a character in Mark Twain's *The Gilded Age*, advocated the issue of paper money based not merely on gold, but on all commodities, in order that the people of the West might have plenty of money with which to develop the country. Discuss the wisdom of the project.
4. Theoretically a country may gain a net advantage from the issue of a moderate amount of government credit money backed by a substantial gold reserve of perhaps 30 to 40 per cent. Explain how the advantage is gained. Be careful, in your explanation, to avoid fallacies.

REFERENCES

I

Dewey. *Financial History of the United States* (1915 edition), chapters 2, 12, and 15.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, section 142–146.
Moulton, H. G. *Money and Banking*, part I, sections 84–119.
Taussig, F. W. *Principles of Economics* (1921 edition), chapter 23.
White, H. *Money and Banking*, book II, chapters 1–4.

II

Bullock, C. J. *Monetary History of the United States.*
Mitchell, W. C. *History of the Greenbacks.*

CHAPTER XXVIII

BANK DEPOSITS AND BANK NOTES

1. Classes of banking institutions. We have now discussed gold money, silver money, and government paper money in their relation to the price system. To complete the discussion of money and the quantity of money in relation to the price level and business activities, we must consider bank notes and bank deposits. Bank notes are money, something like government paper money, issued by banks instead of by governments; and bank deposits serve as a substitute for money. Both affect the price level and have very important economic effects.

There are five classes of banking institutions in this country — savings banks, investment banks, trust companies, commercial banks, and bankers' banks. With the first three kinds we are not particularly concerned in this chapter, since they provide the country with neither money nor a substitute for money as do the commercial banks and bankers' banks. That is to say, they do not as long as they stick strictly to the business implied by their names. Often, however, these three classes of banks engage in commercial banking operations in addition to their regular business. To the extent that they do this, they become commercial banks and must be considered along with other commercial banks. There is a tendency also for commercial banks to invade the field of the savings bank, the investment bank, and the trust company, so we are coming to have what may be called "department banks," something like department stores. Perhaps we should say, then, that in this chapter we are primarily interested in commercial banking operations rather than in commercial banks.

2. Savings banks and their services. We will dismiss savings banks with a few words. They are banks which accept deposits from savers. Upon these deposits they pay interest, provided they are left with the bank for a stipulated time. The banks can afford to pay interest on deposits because they invest the savings in interest-bearing bonds or other safe investments. Savings banks can pay their operating expenses or make a profit by paying something

less in interest on deposits than they receive in interest on the investments they make. They pay, for example, 4 per cent on deposits and invest in 5 per cent bonds, thus clearing 1 per cent. At that rate they would pay out in interest, on deposits of $1,000,000, $40,000 a year, and receive from their investments $50,000 a year, a gain of $10,000. Depositors cannot write checks against savings deposits, as against an ordinary checking account, and cannot, therefore, use their deposits as a means of buying goods. When the banks invest these deposits in bonds — railroad bonds, for example — they are in effect lending the railroads the money deposited by the savers. The savers, through the agency of the savings bank, have given up to the railroads their power to buy goods. By this operation, it should be noted, there is brought about no increase in money in the country nor increase in buying power — the savers give up just as much as the railroads get.

The service performed by savings banks consists in this: They collect small sums from people having small incomes, pay interest on these savings, and invest them in larger sums in good securities. They help the saver to save and reward him for saving, thus stimulating thrift. They make this money available for business enterprises of a sound character and for public improvements by local, state, and federal Governments. Through the savings banks the small savers can combine their small sums and help railroads to improve their roads and equipment, cities to pave their streets and install sewer systems, and States to build public highways. Thus the savers help to build up the country for the benefit of all and gain a private income for themselves with money which they might otherwise have wasted in frivolities.

3. Investment banks and trust companies. Investment banks are something like savings banks, but they tend to reverse the operations. They lend first and look for the savings afterward. That is to say, they buy large blocks of stocks or bonds from corporations or Governments and then seek buyers to whom they can retail what they have bought on a wholesale scale. An investment banker may, for instance, buy a $1,000,000 bond issue from a city that needs the money or loan to extend its sewer system. He then sells these bonds at a profit, if he can, to investors, including perhaps savings banks — a small batch here, another batch there, until he

has disposed of the whole lot. Then he is ready to buy another block of stocks or bonds and repeat the operation. This also is a useful function, but it does not add to the money supply of the country nor provide any substitute for money. It merely transfers money or buying power from one party to another.

Trust companies originally were institutions that performed the work of trustees. They received sums of money to be held in trust or invested for others, for widows and orphans, for example. They acted as custodians of other valuabie property, and served as executors of rich men's estates, etc. They still perform all these services, but, as already indicated, they have tended to spread out in their business, and many trust companies now serve also as savings banks and investment banks and as commercial banks.

4. Commercial banks and their main purpose. We come now to commercial banks, with which we are mainly concerned in this chapter because in the form of bank notes they provide part of the money of the country and, what is of more moment, that important substitute for money, bank deposits subject to check.

Commercial banks are banks whose most important service consists in making short-term loans to business men. They accept cash deposits as do savings banks and sometimes pay interest on such deposits. They also make investments in stocks and bonds and mortgages, but such activities of commercial banks, although important and becoming more so, are only incidental to their main purpose — the making of short-term loans to business men. It is through such loans that commercial banks make most of their profits, and through such loans that they affect the money supply of the country and the level of prices.

The peculiar thing about most of the loans made by commercial banks is that they are not made in actual cash, but in the form of promises to pay cash. Another way of saying this is that banks lend credit, not cash. A commercial bank may have only $100,000 in cash but nevertheless make loans amounting to $500,000, or even to $1,000,000. This may be accomplished by means of deposits subject to check, or by bank-notes, or by both. We will consider first the use of deposits, and in order to explain more clearly the operations of a commercial bank, we will outline the nature of the operations involved from the time the bank starts in business.

5. Organizing a state bank. Commercial banks in the United States are of two kinds — state banks and national banks. State banks are banks chartered by State Governments and are subject to state regulation; national banks are banks chartered by the Federal Government and are subject to federal regulation. The reasons for government regulation will appear more clearly later on. Let us assume now that we are organizing a state bank. The first step is to get not less than five men to agree to start a bank, each putting a certain amount of money into the business. Having made up their minds about the amount of capital they will put in and other details of organization, they apply to the State Government for a charter. If the State Government approves the application, they get their charter, which gives them the right to conduct a banking business under the laws of the State.

A bank so organized is a corporation and is considered by law to be a legal person, a business organization with a personality of its own, distinct from the stockholders that provide the capital with which it begins business. As a corporation it has resources and liabilities. At the very beginning its resources consist of the cash subscribed by the stockholders for their stock, and its liabilities consist of the stock owned by the stockholders. The shares of stock may be thought of as receipts given the stockholders by the bank for the cash it received from them. The amount of the stock is commonly referred to as the "capital" of the bank, but the student should be sure to remember that the real capital of the bank is the money paid for the stock, and not the stock itself. If the bank were to draw up a formal statement of its resources and liabilities at this stage, it would read thus, provided $100,000 had been subscribed:

Resources		Liabilities	
Cash	$100,000	Capital stock	$100,000

6. Beginning banking operations. Now suppose that the officers of the bank — possibly the original five stockholders themselves — rented a building, bought furniture and fixtures to the value of $10,000, and opened their doors for business. Let us suppose, further, that business men, wage-earners, and others came to the bank and deposited $5000 in cash and $10,000 in checks on other banks. How would the bank's statement now look if drawn up? If we dis-

regard for the sake of convenience operating expenses, such as rent, salaries, etc., the statement of resources and liabilities would now read as follows:

Resources		Liabilities	
Cash	$95,000	Capital stock	$100,000
Fixtures	10,000	Deposits	15,000
Due from other banks	10,000		
Total	$115,000		$115,000

Cash is $95,000 because $10,000 of the original $100,000 has been spent for fixtures and $5000 has been added by depositors. The checks brought in by depositors represent sums due to the bank from other banks. The depositors have been given credit for their $5000 in cash and $10,000 in checks turned over to the bank. The student should note particularly that *deposits are not cash*, but represent the amount that the bank owes its depositors, just the same as capital stock is not cash, but represents the amount the bank owes to its stockholders.

It will be observed that the bank's resources are just exactly equal to its liabilities. It is bookkeeping practice always to make these two items — total resources and total liabilities — equal each other, or balance. For this reason corporation statements like the foregoing are called "balance sheets." If the bookkeeper finds upon adding up the two sides correctly, that they are unequal, he solves the difficulty of making the totals equal by the simple expedient of adding another item on the side that is too small. If the resources are smaller by $5000 than the liabilities, he adds a $5000 item at the bottom of the resource side, and calls it a "deficit." If he finds, on the other hand, that the liabilities are smaller than the resources by $5000, he adds an item of $5000 at the bottom of the list of liabilities, and calls it a "surplus." Because of the peculiar nature of their business, banks rarely show a deficit on their books as other corporations often do, but generally a surplus.

7. Discounting illustrated. Suppose now that a little later a half-dozen local business men come into the bank and ask for loans so that they may buy additional stocks of groceries, drygoods, hardware, etc. It is a very common thing for retailers to borrow from their local bank to pay for stocks of goods, and to pay off the loans

with the money received for the goods when they sell them. If they are substantial business men with a reputation for paying their bills, the bank will be glad to accommodate them — it is just the thing the bank is organized to do and the main source of its profits. The business men will be asked to sign promissory notes for the amount of their loans and to leave these notes with the bank's cashier as security for the loan. Each borrower may be asked to have a second business man sign his note for additional security to the bank, or to leave with the bank, as a pledge of repayment, stocks or bonds or other valuable "collateral" which the bank may sell to reimburse itself if the borrower fails to pay off the loan when it matures. If the current rate of interest charged by banks in that city is 6 per cent a year, and the loans run for 60 days, the interest on these loans will amount to 1 per cent of their face value.

Suppose that the borrowers altogether sign notes for $10,000, do they now get $10,000 in cash in the way of loans? No. Instead of giving them cash, the bank is more likely to credit them with deposits, but it does not credit them with the full $10,000 representing the face value of their promissory notes. It collects the interest of 1 per cent in advance and credits them with deposits of the other 99 per cent, or $9900. This is called "discounting the promissory notes," and a loan made in that way is also called a "discount." By collecting interest in advance, instead of when the loan is paid off, the bank gains a slight advantage. The borrowers are paying interest at 6 per cent on $10,000, but are getting the use of only $9900. On this group of transactions this advantage is in effect the interest on the interest, or discount, of $100, which amounts to $1. The important point here, however, is not the matter of the slight difference between a straight loan and a discount, but the fact that the borrowers, instead of getting cash, get credit for a deposit in the bank against which they may write checks.

Let us now draw up another statement of the bank's resources and liabilities:

Resources		Liabilities	
Cash	$95,000	Capital stock	$100,000
Fixtures	10,000	Deposits	24,900
Due from other banks	10,000	Undivided profits	100
Loans	10,000		
Total	$125,000		$125,000

We assume that all other items remain as before except deposits. These are increased by the amount credited to the borrowers, $9900, or the discounted value of their notes. On the resource side appears a new item, "loans," which might also have been written "discounts," or "loans and discounts," and on the liability side another new item of $100 called "undivided profits." It represents the discount on $10,000 in loans, or the difference between the amount the borrowers will finally have to pay the bank and the amount which they can draw out by checks against deposits. Strictly speaking, the $100 has not been earned until the 60 days are up and the loans repaid.

8. Advantage of granting loans in the form of deposits. We may now raise the question, What advantage does the bank gain from giving the business men deposits instead of cash in the way of loans? If the merchants immediately write checks against these deposits to their full amount, and these checks are at once cashed, nothing has been gained by the bank. It might just as well have paid them cash directly. But the merchants are unlikely to write checks against the full amount of their deposits at once. In fact, they are not likely to draw out all their deposits at any time, since it is customary for them to carry a substantial balance in their checking accounts for emergencies. And even if the merchants do immediately write checks to the full amount of the deposits created by their loan, the bank is unlikely to be called upon to pay cash on all these checks, for two main reasons:

(1) The merchants may write checks in favor of other depositors at the same bank. These depositors may then bring in the checks and deposit them to their account, not asking for the cash.

(2) The merchants may write checks in favor of depositors in other banks, either in the same city or in some other city. Now it may happen that depositors in other banks may write checks in favor of depositors in our bank, who bring them in or have them sent in to be deposited to their account. If so, our bank may use these claims against the other banks to offset their claims against it. The two sets of checks may mutually cancel one another, and our bank may not be called upon to pay cash. In actual banking practice banks "clear" such checks through clearing houses or through our Federal Reserve Banks, in ways too complicated to be described in detail in this chapter.

For these reasons banks may with confidence count on being asked to pay out in cash only a fraction of the total amount of deposits which they credit to their borrowers in return for promissory notes. The money that is subscribed in the beginning by the stockholders plus the amount that is deposited from time to time by cash depositors may therefore become the basis of loans far exceeding it in amount, and the source of a large income from interest on these loans.

9. Maintaining a safe cash reserve ratio. The greatest problem of the individual bank and of the whole system of commercial banks is to determine how far in excess of cash on hand it is safe to go with such loans in the forms of promises to pay. Some checks against deposits are always coming in for which cash is demanded and must be paid. If the bank grants loans too lavishly, it may find itself some day without enough cash on hand to cash all checks presented — may find itself, in other words, unable to redeem its promises to pay. The cash that a bank has on hand to meet demands for payment of its checks is called its "cash reserve," or, more briefly, its "reserve." The ratio between the reserve and the deposits, or demand liabilities, is called the "reserve ratio." For example, if a bank has cash on hand amounting to $100,000, and deposits of $1,000,000, its reserve ratio is 10 per cent, because $100,000 is 10 per cent of $1,000,000.

Banks have found by experience that they can with safety make loans, and thus create deposits, many times in excess of their cash on hand, by the simple expedient of making all loans for short periods — from one month to six months — and arranging these loans so that they are payable in a steady stream. They will thus have a steady stream of cash coming in to meet the steady demand for cash in paying checks. To illustrate this point and some others we will bring in one more bank statement. Let us suppose that our bank that we started some time ago has been running four years, and that the following represents its financial condition at the end of the fourth year:

RESOURCES		LIABILITIES	
Cash	$ 200,000	Capital stock	$100,000
Fixtures	10,000	Deposits	1,100,000
Due from other banks	35,000	Due to other banks	15,000
Loans	1,000,000	Undivided profits	5,000
		Surplus	25,000
Total	$1,245,000		$1,245,000

We have in this statement two new items — "due to other banks" and "surplus." The due to other banks item represents payments of various kinds due to other banks. It is more than offset by items due to our bank from other banks. Surplus of $25,000 represents profits made by the bank which the directors have decided to keep in the business instead of paying out in dividends. Surplus is another item, like deposits and capital, which the student is in danger of thinking of as cash. It is not cash, but, as already explained, merely a bookkeeping entry to show that all the other liability items amount to less than the total resources of the bank. It is the amount which the bank owes its stockholders over and above the sum they paid for the capital stock and the undivided profits. Having noted the nature of the two new items, let us note the nature and possible explanation of the changes in the other items.

Our cash item has increased from $95,000 to $200,000. The additional cash might have come from any one or all of the following important sources:

(1) Cash deposits by customers.
(2) Checks on other banks deposited by customers and presented to other banks for payment.
(3) Loans due from borrowers paid in cash.
(4) Loans from other banks, particularly Federal Reserve Banks.

During the time the bank was receiving cash from these various sources, or others, it was also losing cash mainly in the following ways:

(1) Cash drawn out by depositors.
(2) Checks of depositors cashed by others.
(3) Cash loans to borrowers.
(4) Dividends paid to stockholders.
(5) Loans repaid to other banks.
(6) Expenses of operating the bank.

The increase in cash shown in our last statement, then, represents a net increase, the excess of receipts of the kinds indicated above over payments of the kinds indicated above. The bank must be careful, of course, to keep the excess from running the other way to an extent that depletes its cash.

10. Ratio of loans to deposits. Loans have largely increased and are seen to be nearly as large as deposits. This relation in size be-

tween loans and deposits requires a word of explanation. Usually, as has been stated, when a business man borrows from a bank, he takes his loan in the form of a deposit. Each time a loan is made, a new deposit tends to result, equal to the face value of the loan discounted at the current rate for the time the loan is to run. If this were the only source of deposits, and if borrowers always used up their deposits before making new loans, deposits would tend to be less than loans. But, in addition to deposits created by loans, other deposits are made, either in cash or in checks on other banks. Furthermore, business men usually carry a balance in their checking account and make new loans before their old deposits are exhausted. For these reasons deposits tend to be larger than loans, and it is considered a healthy sign for a bank to have deposits in excess of loans. When the deposits are less than the loans, it is a sign that borrowers are not carrying large balances with the bank, that checks are being drawn against it more freely than other checks are being deposited with it, and that cash deposits are small. All this tends to weaken the cash reserve.

11. What is a safe reserve ratio? Next let us observe the reserve ratio of our bank. Cash amounts to $200,000 and deposits to $1,100,000. The ratio is then a trifle over 18 per cent. If we count as cash reserve the excess due to our bank from other banks over sums due to other banks, and this may usually be done, it would increase cash to $220,000 and raise the ratio to 20 per cent. Is our bank to be considered in a safe condition when it has in cash only $220,000, and owes its depositors $1,100,000, every dollar of which they could legally demand without previous notice? Not if they were at all likely to come flocking in together and demand it all at once. But this they are not likely to do. But suppose that only 1 per cent of the deposits were withdrawn in cash each day, would not the bank's reserve of $220,000 soon be exhausted? At the rate of 1 per cent a day the bank would be paying out $11,000 a day. The bank would be safe if it had arranged its loans properly — making them for short terms and with even distribution of maturities. If they were 90-day loans on the average, the bank would have $1,000,000 being paid off in loans every 90 days, making new loans, of course, as old loans were paid off. But the new loans would be made in the form of deposits and the old in effect paid in cash. In

actual practice the business man who had a short-term loan at the bank would tend to deposit cash or checks from his daily sales with his bank and thus build up a balance against which he could write a check to pay off his loan when due.

On the average the bank would get in each day one ninetieth of $1,000,000, or $11,111. Thus it would be able to take care of cash demands without even using its cash reserve. Taking such facts into consideration and others which cannot be detailed here, bankers realize that the cash reserve ratio need not be very high for safety. The stream of cash coming in from various sources feeds the stream of cash going out. The cash reserve is maintained to meet temporary emergencies when the demands for cash going out become unusually great or the stream coming in temporarily fails.

How great the reserve ratio should be for safety depends upon the nature of the bank's business and the general business conditions in the country. In some business communities at some times 5 per cent might be sufficient. In others, 25 per cent or even more would represent a prudent minimum. Bankers' banks generally maintain a higher reserve ratio than commercial banks for reasons to be explained later. The size of the ratio may be left to the judgment of the bankers of a country or a minimum may be fixed by law. If it may be presumed that the bankers as a group are honest and intelligent, it may be left to them. But if it is to be presumed that a considerable proportion of the bankers are either not honest or not intelligent, or both, then we fix a minimum by law. In England the first presumption seems to exist, but in the United States the latter presumption appears to exist, and we fix by law the minimum reserves that bankers must keep.

12. Natural antagonism between reserves and profits. The question may be raised, Why be so particular about the minimum reserves required? Why not play safe and always keep ample reserves? The answer is that the banker's main source of income is interest from his loans and that every loan he makes reduces his cash reserve ratio. There comes a time when he must choose between limiting his income from loans and maintaining a safe reserve ratio.

Suppose that a bank has in cash $100,000, loans of $900,000, and demand deposits of $1,000,000. Its cash reserve is then 10 per cent. If its loans are earning 6 per cent a year, it has an income of $54,000

a year from them. Now an opportunity presents itself to increase loans by $100,000. At 6 per cent this means additional income of $6000 a year with scarcely any additional expense. But to grant these loans of $100,000 will reduce the reserve ratio. The loans may be made only in cash or in deposits, or, if the bank has the note-issue privilege, in its own bank notes. Obviously making the loans of $100,000 in cash would be unwise, since it would wipe out the cash reserve. Making them in the form of deposits would bring deposits up to $1,100,000, if we disregard as immaterial in this case the discount. The cash remains the same, so the ratio drops to 9 per cent. If the bank has the note-issue privilege, it may make loans in its own notes, but that also weakens its reserve position, since a bank must always be prepared to redeem its notes and must consequently maintain a reserve for that purpose. We must conclude that there is a natural opposition between strong cash reserves and maximum profits in banking.

We should add, perhaps, that making investments decreases a commercial bank's cash reserve just as does a cash loan. If the bank, for example, buys $10,000 worth of bonds, it must ordinarily pay for them as any other investor does, in cash, unless it borrows the money to pay for them. If it borrows, there will be little profit left after it pays interest on its loan. If it pays in cash, it reduces its cash reserve by an equal amount.

13. Bank notes compared with bank deposits. Commercial banks may or may not have the privilege of issuing bank notes. In the United States at the present time banks chartered by the States do not issue bank notes, since these are subject to a prohibitive tax by the Federal Government under the Act of 1865; but up to the time of the Civil War they issued bank notes in great quantities. From 1866 to 1914 our bank notes came from the banks chartered by the Federal Government, the national banks. These banks still have a limited note-issue privilege, but most of our bank notes at the present time are issued by our bankers' banks, the twelve federal reserve banks to be discussed in a later chapter.

Bank notes are in some respects like bank deposits, but in some important respects unlike them. Both notes and deposits represent the bank's promise to pay on demand. But the bank note is made payable to the bearer, and is properly considered a form of paper

money and passes from hand to hand as does other money, so long as people in general have confidence in the banking system or in the particular bank that issued it. The check against a bank deposit is ordinarily made payable to the order of a designated person. The writer of the check writes in the space provided for that purpose the name of the person to whom the payment is to be made, so the check reads for example, "Pay to the order of J. H. Brown." When Brown presents his check at the bank for payment, he must endorse it; that is, he must sign his name on the back of it. The bank will not pay him unless it is reasonably sure of his identity. Brown may take the check to a clothing store and offer it in payment for a hat, asking to be given the difference between the price of the hat and the face of the check in cash. Only if he is known to the storekeeper, or has some convincing evidence that he is the Brown designated on the check and that the check is good, will the check ordinarily be cashed for him. If it is cashed, he first endorses it and then the storekeeper in turn endorses it when he presents it for payment at the bank. It is evident, then, that checks do not circulate as readily as do bank notes. They may pass through the hands of several people, each of whom endorses them, but generally they are carried pretty directly to the bank for payment or to be deposited to the account of the bearer.

It should be noted that it is the bank deposit, and not the bank check, that represents the bank's promise to pay. The check is an order written by a depositor against his deposit. There is always the possibility that the person who writes the check may not have any deposit in the bank, and then the check is worthless. Before a check is acceptable in exchange, the man who accepts it must be convinced of the reliability both of the bank and the writer of the check and of the person who presents the check. But a bank note is the direct promise of the bank to pay, carefully engraved on special paper and hard to counterfeit. For it to pass readily from hand to hand as money, only confidence in the bank that issues it is required. Bank notes, being generally acceptable, may wander far from the issuing bank and remain in circulation for months or years before being returned to the bank for redemption.

14. Desirability of legal regulation of bank note issue. Unless the issue of bank notes is safeguarded by law, the right of issue is

likely to be abused by unscrupulous bankers. If bank notes have become favorably known in a country and pass readily in exchange, people are likely to pay little attention to the name of the particular bank that issues them and to accept notes from all banks alike. Dishonest bankers, relying upon this faith of the people in bank notes, and counting upon the probability that few of the notes they issue will soon be presented for redemption, may issue great quantities of notes without making adequate provision for redemption. Honest bankers keep on hand cash reserves sufficient to meet all probable demands for redemption and are ordinarily able to redeem all notes put out. Dishonest bankers, however, may make loans freely, pay out their bank notes in exchange for the promissory notes of their borrowers, receive payment on loans made in cash, and thus accumulate wealth, which they may use for their own purposes — perhaps in high living or speculation. After a time, when they have flooded the country with their notes and these begin to come home for redemption in uncomfortable amounts, the dishonest bankers may gather up all the money they have on hand and abscond. Or possibly by shrewd legal maneuvers they may manage to remain at home, keep their ill-gotten gains, and escape paying their notes by the convenient process of bankruptcy. For this reason alone it is desirable to put limitations upon the freedom of bankers to issue bank notes. There are other reasons.

15. Difference between bank loans and other loans. It has already been stated that one peculiar thing about loans by bankers is that they are not, like other loans, the result of saving. It is not necessary for a banker to reduce his spending to increase his lending. It is only when a bank lends in cash that its loans are like other loans. When it lends by means of granting deposits or by printing its own notes, it is lending, not cash, but promises to pay cash, and, for reasons outlined in this chapter, it is safe for banks to make loans many times greater than the cash they have on hand. Beginning with $100,000 in cash, a bank can make loans in the form of deposits to ten times that amount, or more. Now it is obvious that the bank may lend more buying power than it gives up itself, and more money than the bankers have saved. The bankers may have saved only the $100,000 they start in business with and lend to others $1,000,000. If customers deposit another $100,000 in cash, the bank may

make this the basis of several hundred thousand dollars of additional loans. Since the deposits are used in the form of checks by the borrowers as a substitute for cash, they have the same influence on prices as that much money, as we have already explained in our discussion of the equation of exchange. Expansion of bank deposits tends to make the level of prices rise, because it represents additional purchasing power in the country and does not by any magical process increase the quantity of available goods. The issue of bank notes may bring the same results, and expansion of note issue is likely to proceed to greater lengths than expansion of deposits unless regulated by law, since the bankers are less likely to be called upon to redeem notes than to cash checks drawn against their deposits.

Without regulation by law the expansion of loans by means of deposits and bank notes is limited, on the one hand, only by the demand for loans and the security offered by the borrowers, and on the other hand, by the desire of the bankers to maintain a safe cash reserve for the purpose of meeting all demands for cash that are likely to be made.

The incentive for expansion is the business men's desire, on the one hand, to expand their operations by means of bank loans, and the banker's desire for profit, on the other. Our next chapter will be devoted to a discussion of the conflict between profits and safety, and to the economic consequences of expansion of bank credit, as these consequences appear in the business cycle.

EXERCISES

1. In what forms may commercial banks make loans? In what form do they make most of their loans? Why?
2. Explain how it is that a commercial bank with a capital of only $100,000 may make loans of more than a million dollars?
3. A certain bank's capital was $100,000, its cash reserve $150,000, and its deposits $1,200,000. Its loans averaged about $1,000,000 during the year and its discount rate was 6 per cent. What was its cash reserve ratio? What percentage of its capital did the income from its loans represent?
4. Why is it dangerous for a commercial bank to have a low cash reserve ratio? Why do not banks always maintain a high cash reserve ratio, and avoid danger?
5. One peculiar thing about bank loans is that they do not ordinarily result from saving, as other loans do. Explain.
6. Why does the expansion of bank loans tend to raise the general level of prices?

REFERENCES

I

Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 22.
Moulton, H. G. *Financial Organization of Society* (1921 edition), chapter 19.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 24 and 25.

II

Holdsworth, J. T. *Money and Banking.*
Moulton, H. G. *Money and Banking*, part II.
Westerfield, R. B. *Banking Principles and Practice.*
White, H. *Money and Banking.*

CHAPTER XXIX

BANK CREDIT AND BUSINESS CYCLES

1. A business cycle defined. The economic history of the United States and of other leading industrial countries since the Industrial Revolution has consisted largely of one business cycle after another at more or less regular intervals of time. A business cycle consists of a number of stages of activity through which business as a whole, or any particular industry, passes during the course of several years. Each cycle embraces a period of business depression, a period of recovery, a period of prosperity, a period of boom conditions and growing financial strain, and a crisis sometimes resulting in a financial panic. The crisis or panic is followed by a period of depression — the first stage in the next cycle.

2. No exact periodicity of cycles. Although such cycles have followed one another more or less regularly in the United States, it must be understood that there is no exact periodicity. In fact there could not be an exact periodicity. If there were, people would learn to predict just when the crisis would occur, and a crisis is not likely to occur at the expected time if it is generally foreseen. The time between the bottom of one depression and the next may be as short as two years, or much longer. The most common interval during the last quarter of a century has been three or four years. To complicate matters, and to make it more difficult for business men to realize at any given time just where they are in the cycle, there are cycles within cycles. For example, a period of depression was followed by a period of revival in 1896, after the election of McKinley and the defeat of Bryan. Recovery developed into prosperity and prosperity into boom. A minor crisis developed in 1900. Recovery quickly followed, however, with prosperity, and then another crisis in 1903, not very severe in character. Again recovery came, promptly to be followed by a boom and the crisis of 1907, which developed into a severe financial panic. From one point of view we have here three successive cycles, but from another point of view just one big cycle containing two little cycles whose little crises did

not check the great wave of prosperity culminating finally in the crisis of 1907.

3. Business cycles natural result of relations between banks and business. Business cycles may with much truth be said to be natural phenomena of an industrial system organized on a production for profit basis and making extensive use of bank credit. The periods of expansion that lead to the periods of financial strain and crisis result quite naturally and almost inevitably from the very nature of the relation between business men producing for profit and commercial banks lending for profit. It would be going too far, perhaps, to say that expansion of bank credit causes business cycles. It would doubtless also be going too far to say that the hired man's leaving the gate open caused the cows to get into the cornfield, since he can not be held responsible for their gustatory predilections. There is a strong presumption, however, in favor of the view that the open gate had much to do with the cows' getting into the corn, and that if it had not been left open the cows would not have got in. Would it be unjust to blame the hired hand if some of the cows died from getting too much corn, and should he receive much sympathy for the trouble he might have in getting the rest of them out of the cornfield and nursing them back to health?

If expansion of bank credit does not *cause* unhealthy business expansion with the inevitable crises and depression, it certainly *permits* it to develop, and it is difficult to see how the unhealthy expansion could occur without expansion of bank credit, except in the case of a very similar phenomenon — the inflation of the currency with government paper money. The close relation between bank credit and business cycles can be made clear by tracing through the development of a typical business cycle.

4. The period of depression. Let us begin with the period of depression that has followed in the wake of a devastating panic. Thousands of business men have been ruined. Hundreds of thousands are on the verge of ruin, wondering how they will pay their debts. Confidence has been destroyed. Many factories are closed down and many others operating only on part time. In a country as large as the United States millions of men are without employment. Demand for consumers' goods is slow, for various reasons. Prices have just fallen sharply, and people anticipate still further

declines in prices. This is a good reason for postponing purchases. Workmen without jobs and with little saved from their period of prosperity cannot buy freely, nor can business men without profits. Demand for producers' goods is slow because business men find a slow market for their product, and they hesitate to lay in supplies of producers' goods at present prices for fear of further declines in prices. Furthermore, they may lack ready money to buy with and find it difficult to borrow or buy on credit because they are known to be in a precarious financial position, which makes extension of credit to them dangerous.

Business at such times is by no means at a standstill. People are still consuming goods. Production and trade continue, in some lines at nearly normal levels, but in others suffering various degrees of depression below normal — in some cases 25 per cent, in some 50 per cent, and in some perhaps nearly 100 per cent. The extent of the decline in business is likely to appear larger than it really is, because profits decline much more rapidly than the volume of business, and with the fall in prices the decline in the money value of the business operations is much greater than the decline in the physical volume of trade. The decline in the number of employees in an industry is a good index of the decline in production. According to statistics gathered by W. I. King, the number employed in the third quarter of 1921 was less than the number employed in the third quarter of 1920 by 25.6 per cent in manufacturing, 16.2 per cent in transportation, 11.6 per cent in building, and 15.7 per cent in mining.[1] These figures measure the degree of depression in these industries following the crisis of 1920. Business operations are restricted and hampered by lack of confidence and the necessity for economy, rather than brought to a standstill.

Figure 11 represents an index of employment for the twelve years 1914–1925 charting the degree of employment in manufacturing industries in the United States as percentages of average employment in 1923. It shows how employment is affected by fluctuations in business activity during the various phases of the business cycle. Conditions during these twelve years were, however, abnormal on account of the World War and its after effects. The reader may note the sharp dip in employment in the latter half of 1920, when

[1] W. I. King, *Employment, Hours and Earnings in Prosperity and Depression*, p. 30.

the business boom following the war came to an end, the considerable rise from the early part of 1921 to the middle of 1923 during the period of recovery and prosperity, and the dip in the minor depression of business in 1924.

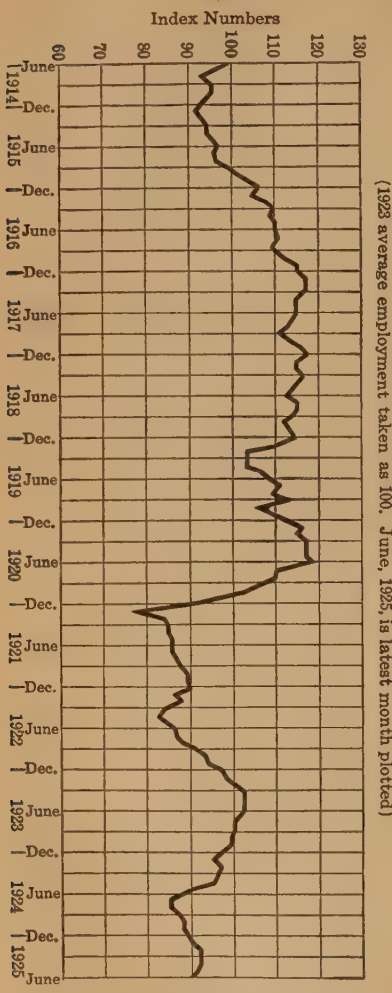


FIGURE 11. INDEX OF EMPLOYMENT IN MANUFACTURING INDUSTRIES IN THE UNITED STATES

(From *Survey of Current Business*, August, 1925)

5. Recovery aided by cheap bank loans. Gradually the fear of further financial disaster is dispelled. The continued demand by consumers for substantial quantities of goods encourages business men to begin to stock up again with producers' goods and to expand operations. In this those who can offer reasonably good security are encouraged by the banks with offers of loans at very low rates. Banks' loans have declined following the crisis and their income has declined with the loans. Meanwhile their cash reserves have grown larger, because during the period of depression consumers, spending little, use little pocket money, and business men have little cash in their tills. A larger proportion than usual of the money of the country finds its way into the banks in the form of cash deposits. Banks with very high reserve ratios and small profits are eager to reverse the situation by making loans, and offer the loans at low rates as a special inducement.

6. Accidental circumstance may hasten prosperity. If now some

accidental circumstance increases the buying power of some class in the community and stimulates some branches of business, the period of recovery quickly develops into one of prosperity. In 1897, for example, a partial failure of the European wheat crop permitted the farmers of the United States to dispose of part of their unusually large crop at a good price abroad and to sell the rest at a good price at home. This, together with the defeat of Bryan in November, 1896, restored business confidence and cleared the way for a return of prosperity.

The business recovery spreads quickly from one branch of industry to another because each business is the customer of several others. Demand for nearly all classes of goods increases rapidly as the business revival runs on. Manufacturers stock up on raw materials. Wholesalers and retailers, who have been buying from hand to mouth in anticipation of further decline in prices, buy more liberally, partly because they foresee no further fall in prices and partly because they fear a rise may come. Consumers buy more freely, partly because they cease hoping for lower prices and partly because they are enjoying higher incomes — wage-earners being more regularly employed in greater numbers and business men beginning once more to enjoy profits. The increased demand for goods at first does little but check the fall in prices. Producers are too eager to sell to hold out for higher prices. But as the demand continues to grow, sellers begin timidly to hold out for higher prices, and a gradual rise in prices sets in. With business expanding at rising prices, profits begin to mount and business men begin to speak of prosperity as having arrived and of a boom coming just around the corner.

7. Stock market may foreshadow prosperity and boom. The coming of prosperity and the boom in business tends to be foreshadowed by a violent rise of prices of stocks on the New York stock market. Prices of safe bonds and of some of the better grades of stocks rise during the period of recovery or even during the latter part of the period of depression, largely because of the low interest rate on bank loans. It pays the banks to invest their surplus cash reserve in high-grade securities, and it pays others to borrow from banks to buy such securities or to invest their own available funds. The stock and bond market may thus enjoy a boom period while business as a whole seems still in the depths of depression. But

when the period of business recovery is well under way and commodity prices are rising and speculators and investors begin to foresee larger earnings for corporations and larger dividends on common stocks as a consequence, the stock market begins to boil and prices of stocks shoot wildly upward. Since much of the buying of stocks is done on borrowed money by speculators buying on margin, the stock market boom brings an increase in bank loans and plays a part in bringing on that stage in the business cycle that accompanies the boom period — the stage of financial strain.

8. The business boom. The business boom into which the period of prosperity naturally develops, if not checked, may be defined as a period of business activity in which business men in general are not only enjoying capacity business and great profits, but are finding their existing plants too small and are undertaking or planning to undertake an expansion of plant which may be expected to give them still greater profits. The business boom is brought about largely by the rise in prices which is perceptible during the period of revival, becomes more pronounced as the period of prosperity runs its course, and finally becomes wildly exciting. The rise in prices is brought about by a demand for goods increasing more rapidly than the supply. Once such a rise gets under way, its tendency is to grow. This follows from the very nature of the business organization under the price system. Business men buy to sell at a profit, and since they generally buy first and sell later the rising price level increases their profits above normal. Furthermore, on the whole, the prices of producers' goods, depending as they do on the prices of the products made from them, rise after and not before the prices of their products.[1] Thus a rising price level naturally tends to swell profits. Whether or not business men realize that their profits are larger partly as a result of a rising price level, they are encouraged by business conditions to buy more freely. Profits are good, prices are going up. To buy promptly is to buy more cheaply than to defer buying, because it forestalls a further rise in prices. But this extra buying done in anticipation of an additional rise in prices increases demand and thereby causes the very rise in prices anticipated.

[1] The critical reader should bear in mind that producers' goods, as the term is here used, include all goods the business man buys and not merely raw materials.

It is sometimes pointed out that prices of producers' goods rise more rapidly than prices of consumers' goods, which would seem to contradict a statement made above that prices of producers' goods depend upon, and therefore rise after, the prices of their products. The contradiction is only apparent. Prices of some producers' goods, such as raw materials, may, and often do, rise more rapidly than or before the prices of the products made from them, even in the early stages of the period of prosperity. But this is mainly because the prices of other producers' goods, as we use the term producers' goods in this book, rise more slowly, or not at all, such as wages, interest, rents fixed by contract for a term of years, freight rates, and so on. Writers who point out that producers' goods rise in price more rapidly than consumers' goods restrict the meaning of producers' goods primarily to raw materials.

The rising price level tempts all business men, whether manufacturers, wholesalers, or retailers, to buy more promptly and in larger quantities than they would buy with a stationary price level — all hoping to gain by so doing. Buying beyond current requirements to forestall price advances spreads also to buyers of consumers' goods, which increases further the demand for consumers' goods, already swelled by the free spending of business men making or anticipating great profits and of wage-earners receiving good wages with steady employment.

9. Reckless buying and speculation. When the boom period is at its height, not only are business men buying recklessly — manufacturers buying huge stocks of raw materials and merchants overloading their shelves — but they are competing with one another for building materials and building labor with which to construct new factories or additions to the old, or new store buildings, and for machinery and other equipment for the new business buildings. As the result of the great demand for labor, money wages rise, in some cases, for particular classes of workmen, to fantastic heights, and the laboring men tend to spend lavishly, often not stopping with merely "blowing in" their current wages, but buying expensive luxuries on the installment plan in the expectation of paying for them with the "easy money" to be made in the future. This provides a special boom demand for the products of industries producing luxuries.

One important aspect of the boom period is the speculation in

commodities. Manufacturers and merchants are speculating in commodities when they buy greater quantities of raw materials or stocks of goods than they require for current needs, simply because they expect prices to rise. But in addition to this speculation of manufacturers and merchants is the speculation of professional and amateur speculators in wheat, corn, cotton, sugar, copper, iron and steel, etc. Everything is going up, they reason, so why not buy, hold for a while, and sell at a profit? This sort of speculation is facilitated by the organized commodity exchanges, in which standardized commodities may be bought and sold on margins by people who know nothing about them, except that they hope the price will rise or fall. Of such speculation there is always a certain amount going on, but it tends to blaze forth with special vigor in periods of rising prices.

Figure 12 shows the ups and downs of the prices of commodities and corporation stocks during the ten years 1916–25, as represented by an index of wholesale prices and the average price of twenty-five industrial stocks and the average price of twenty-five railroad stocks. The wholesale price index represents the average price of about four hundred commodities stated as a percentage of the average price in 1913. In this figure, as in Figure 11, the reader may note the great upward movements in 1919 and the early part of 1920, and the sharp dips in the latter part of 1920 and 1921. Industrial stocks tend to move in closer conformity to commodity prices than railroad stocks. This is easily explained. Rising commodity prices tend to increase the profits of manufacturing corporations. The earnings per share of stock rise in proportion and higher dividends may be expected. The rise in stock prices tends to precede the rise in commodity prices because speculators anticipate prosperity and buy stocks before it comes. Railroad earnings, however, are limited by government regulation of rates, as already explained, and rising prices may merely increase railroad expenses without increasing materially their earnings.

10. The rise in prices and the expansion of bank loans. All this rise in prices, accompanied by expansion in the physical volume of trade, would be impossible without expansion of purchasing power, in the form of either money or bank deposits or both. The reader must be reminded of the equation of exchange — $MV + M'V' = PT$.

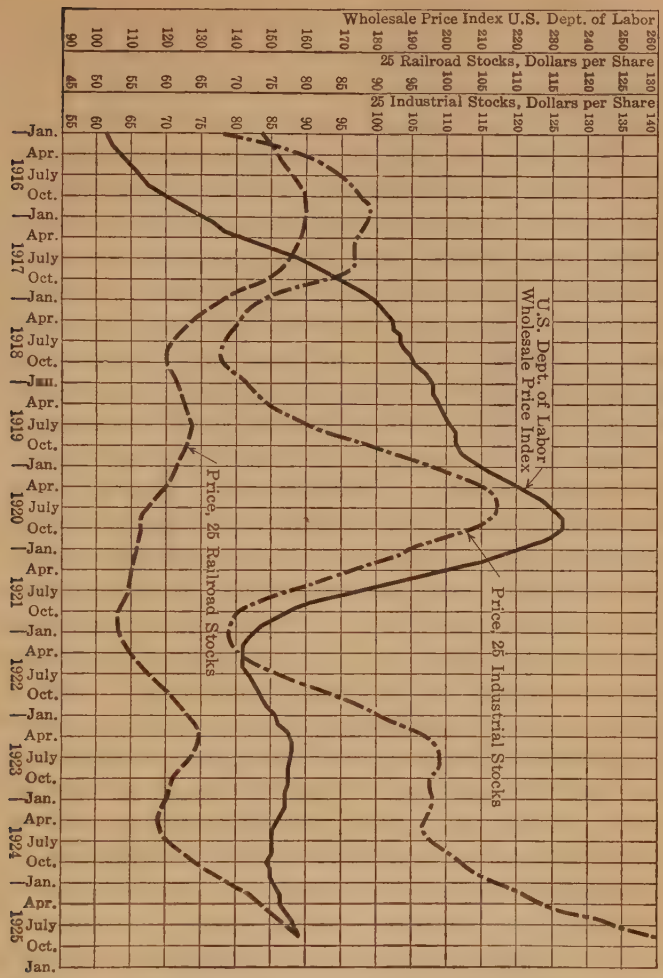


FIGURE 12. WHOLESALE PRICES AND STOCK PRICES IN THE UNITED STATES

(From *Survey of Current Business*, November, 1925)

The quantity of money times its velocity of circulation plus the quantity of bank deposits subject to check times their velocity of circulation equals the total quantity of goods sold times the average price. It is obvious that we cannot increase the quantity of goods sold and their average price without at the same time changing some of the factors on the other side of the equation.

In the early stages of the business recovery it is mainly the velocity of circulation of money and deposits that changes. People are buying more freely. Money changes hands oftener and depositors write checks more freely against deposits. But this alone will not carry business revival far. In order to expand much, business men must resort to new loans at the bank. If, now, production and trade, in physical volume, could keep pace with the expansion of bank loans, then no rise in the average level of prices would occur. But with expansion of business taking place, business men begin to make better profits and wage-earners to earn more wages, and both buy more freely. Because of this or for some other reason, such as a shortage in the supply of wheat or an unusual foreign demand for copper, a rise in price appears in some quarter and begins to spread. If the extra purchasing power required to pay the higher prices that first appear could not be manufactured by the banks in the form of deposits or notes, and if no additional metallic money or government paper money became available, and the velocity of circulation of money and deposits did not increase, then prices in other quarters would tend to sink, rather than rise, and no general rise in prices could follow. But this extra purchasing power is manufactured by the banks when various business men apply to them for loans to expand their business. The rise in the prices of some commodities, therefore, instead of tending to depress prices of other commodities tends to cause them to rise. Business men reason that because some have risen in price others will rise. The first rise in prices then stimulates forward buying of commodities in various lines — and this buying is done largely by means of bank deposits created by loans. Such buying tends to outrun increases in production and leads to further increase in prices which stimulates further borrowing and buying, and so on. Business men are pretty largely buyers of one another's products, and the bank loans of one by means of which he buys his producers' goods tend to permit a rise in the price of some other's product. And the rise in the price of this one's product encourages him to borrow more at the bank to increase his production, and his increased buying of producers' goods increases the demand for and the price of some other man's product, and so on, round and round quite merrily.

11. Bankers and business men welcome the expansion in loans.

To the extent that credit expansion exceeds expansion in physical volume of production and trade the additional bank loans permit a rise in prices, and the rise in prices, by tending to increase the profits of business men and speculators, encourage them to apply for more bank loans in order to carry on business on a larger scale. Even those business men who are not trying to expand must borrow more freely to carry on the same physical volume of production or trade as before because of the higher price level, and their extra borrowing adds to the sum total of purchasing power, which makes the higher level of prices possible.

This expansion in bank credit is, of course, agreeable to the bankers, for to them it means larger profits. The extra discount or interest is almost pure gain, since it costs but little more to make many and big loans than to make few and small ones. Furthermore, within limits there is very little risk attached to making the extra loans. The bankers are usually careful to demand good security. The larger loans that the business men require to carry their larger volume of business at higher prices have as security this larger volume of business at higher prices. The bankers would deny being responsible for the increase in prices. They would say that the rising costs of the business men and the larger volume of trade made larger loans necessary. They are only taking care of the "legitimate requirements" of business at whatever price level prevails.

12. Loan expansion reduces the reserve ratio. The period of expansion cannot last indefinitely, for two reasons. Prices cannot rise indefinitely because of the exhaustion of bank reserves. Physical volume of production cannot expand indefinitely because of the limited supply of labor and other kinds of producers' goods. Let us consider the matter of bank reserves. As explained in the preceding chapter, every loan made by a bank, whether it be in the form of cash, bank notes, or deposits, reduces its cash reserve ratio. If it continues to expand loans, therefore, it will finally bring its ratio down to the danger point beyond which it is unwise to go, and in the United States, where legal reserve ratios are set, unlawful to go. Even with a centralized banking system, with bankers' banks to which the commercial banks may turn for financial aid, the outcome is the same, because the reserve of the bankers' banks will also eventually fall below the danger point.

When banks begin to foresee that much further expansion of loans will be dangerous, they begin to refuse loans in quarters which will do their business the least harm — generally beginning their policy of curtailment on speculators. But regular business men — such as merchants and manufacturers — also in time find their loans curtailed or denied. This credit strain is likely to find the business men at the height of their boom. It is only one of various strains that develop to plague them in the boom period, which may also be called, as we have stated, the "period of financial strains."

13. **Why prices fall when loan expansion ends.** When expansion of credit ceases, the general rise in prices must come to an end. And the end of the period of rising prices inevitably means the beginning of a period of falling prices. One might reason from the quantity theory of money or the equation of exchange that mere cessation of expansion should not bring a fall but merely leave the price level stationary — the total amount of money and credit remaining the same. But it must be remembered that expansion of credit only permits a rise in prices — it does not compel such a rise. The rise in prices depends upon the desire to buy as well as the capacity to buy, and expansion of credit provides only the capacity. Generally the desire to buy gives rise to the loans and the credit expansion. Loan expansion in the price system acts something like the string on a toy balloon. The longer the string, the higher the balloon may rise, but the string does not compel it to rise. It is the gas lighter than air within the balloon that makes it rise. When the gas escapes, down comes the balloon, and a string a mile long will not hold it up an inch. Likewise when the buyers' desire to buy evaporates, a mile of credit will not make them buy. It takes more than extended credits to maintain prices at high levels. In this connection it may be added that it is only in the long run — over a long term of years — that the trend of commodity prices tends to conform closely with changes in the quantity of money. Above and below the long-run trend we find the sharp fluctuations of the business cycle, related more directly to the quantity of bank credit than to the quantity of money. Yet it should be noted that the greater the quantity of money is, the greater may become the amount of loans which banks can make with safety.

14. **When everybody unloads, the crisis.** When expansion of

credit comes to an end, and the rise in prices is checked, buying that has been done merely in anticipation of a further general rise in prices tends to cease, and some commodities bought for speculative purposes are hastily sold by the speculators. This causes the prices of these commodities to fall and scares other speculators into selling, particularly those who have been dealing on narrow margins and who are being pressed by their creditors to pay their debts. Such selling leads to further declines in prices, and business men, noting the tendency toward falling prices, become eager to unload heavy stocks of finished goods and stop their frenzied buying of raw materials in excess of current needs. The downward movement in prices thus gains momentum. Everybody seems to be trying to unload before prices fall further, and nobody wants to buy. Manufacturers hold off buying raw materials. Merchants do not replenish stocks of goods. Consumers scenting lower prices postpone buying. Suddenly people realize that the crisis has come, and the country is settling into a period of depression, with factories closing down, workmen unemployed, and business men failing in large numbers. They will realize more promptly that the crisis has come if it is accompanied by a financial panic, with wholesale suspension of banks. The conditions of financial strain just outlined are alone sufficient to bring an end to the boom and precipitate a crisis, but other factors are operating toward the same end at the same time, and to these we must now turn our attention.

15. Why business men profit in the early stages of expansion. During the period of prosperity and boom we find the business man selling his product at constantly rising prices, and these rising prices, together with some physical expansion of output, have for a time a strong tendency to increase his profits, partly because he buys first and sells later and thus gets the advantage of the rise in the price level, and partly because his costs in the aggregate have a tendency to rise less rapidly than the price of his product or to lag behind the rise in the price of his product. The reasons why costs lag behind prices have already been given — the prices of producers' goods depend upon the prices of the product, and naturally, therefore, the rise in the prices of the product must come first and induce the rise in the prices of the producers' goods. Furthermore, some costs of business men are fixed by contract and do not change for consider-

able periods of time; as for example, interest on bonds, rents on business buildings, and salaries of some employees. Again, some costs which are not fixed by long-term contracts will not rise promptly with the period of recovery and prosperity. Bank credit remains cheap so long as banks have idle cash reserves, and therefore the business man's costs for bank loans do not rise. If many workmen have been unemployed during the period of depression, an increased demand for labor does not for some time bring a rise in wages.

16. How rising costs bring failure. But this happy state of affairs does not last. As the expansion in loans continues and the demand for loans grows insistent, banks raise the discount rate. As expansion in the physical volume of production and trade continues, labor grows scarce and business men in competing for an ample supply force up the level of wages. When old bond issues mature new loans must be made at higher interest rates, and when old rental contracts expire the business man's landlord, taking advantage of the great demand for business buildings, raises the rent. The supply of some kinds of raw materials does not increase readily in response to a rise in price as the demand increases, particularly such agricultural products as cotton, wool, hides, rubber, and the prices of these rise abnormally, perhaps more rapidly than the price of the product. Once all workmen are employed, the supply of labor will not increase with further increase in demand, except perhaps by immigration, and as a result wages rise rapidly. To make matters worse for the business man, the workmen, finding jobs easy to get at high wages, begin to loaf on their jobs. They do less for more money, and this increases the cost of labor actually performed out of proportion to the rise in wages. These conditions tend to grow worse and worse for the business man until the height of the boom is reached, and many business men begin to complain of the high costs of doing business and of the difficulty of making profits even at the high prices they receive for their products. No one business man alone, however, controls the price of his cost items — it is the collective demand of all producers that fixes the price level of the producers' goods of all kinds. When business men here and there begin to suffer losses instead of making profits, they cannot remedy the matter by paying lower prices for their cost items.

They must pay the current price or quit. But as stated in earlier chapters, to quit may involve larger losses than to continue, owing to the operation of the law of indirect costs. If it were not for indirect costs business men would find it comparatively easy, by reducing output or closing down their plants, to escape severe losses. But indirect costs may ruin the producer who reduces output or closes his plant. So expansion goes on until failure overtakes some of the more reckless or incompetent. Inability to make profits or to obtain further loans may find many with a program of expansion cut short — an unfinished building, or a building finished but not equipped with machinery, or equipped with machinery which is standing idle for lack of the raw materials which the business man is unable to buy at the prevailing high prices and with the shortage of credit.

17. Crises and panics. The failure of some important concern, together with the growing financial strain and the high costs, may precipitate not only a crisis, but a financial panic. Business men with abnormally heavy loans at the bank, which they have expected to repay with the money received for products sold at high prices, find their products unsalable or salable only at ruinously low prices. Unable to pay their current obligations, they go into bankruptcy. Banks, unable to collect on their loans to business men, find their cash reserve exhausted, and may be unable to pay cash to depositors, and suspend payment.

The failure of a few business men and a few banks may involve a number of others in failure, because if these few cannot pay what they owe to others, these others cannot in turn pay the sums they owe. An important aspect of the matter is the attitude of depositors of banks when doubt arises as to the ability of the banks to pay cash on demand. Under such circumstances there is a rush of depositors to present checks for payment; such a rush might exhaust even the cash reserves of a bank with great reserves, and it quickly causes a bank with reserves diminished by loan expansion to suspend cash payments. Practically all banks may be forced to suspend, as happened in the United States in 1893, and again in 1907. When this happens, business for a short time comes practically to a standstill. The country is virtually without a medium of exchange. It seems for a time that everybody will fail in one

grand universal crash, and confidence is destroyed. These conditions of panic last for only a few weeks, but during that time irreparable injury has been done to thousands of business men, who have been ruined by temporary inability to obtain the cash or credit that would tide them over a period of emergency. Not only those business concerns fail that have become hopelessly involved in debt by borrowing extensively to finance expansion at high costs, but many others, which have been relatively conservatively managed, fail for lack of the support they ought naturally to receive from their bankers.

18. The gains and losses resulting from business cycles. Having now sketched the development of a business cycle from the period of depression up to the crisis and the possible panic, let us note some of the evils that accompany it and whatever of good may be said of it. The period of rising prices is credited with being a favorable development because it stimulates business and actually increases, at least for a time, the volume of goods being produced. Idle men, land, and capital are set to work, and the prosperity that comes is based on the solid foundation of more goods. It should not be forgotten, however, that the fact that much labor, land, and capital have been idle is largely the result of the previous crisis and period of depression. We must charge that up against the business cycle.

The great profits of the business men and the high wages of labor must be credited to the period of rising prices and expansion. But the profits are not always real. To a considerable extent they represent the same amount of profits calculated in smaller units — the purchasing power of the dollar having declined. The business man is inclined to consider as profit also the increase in the value of his plant that comes from higher prices, and not merely the increase that comes from physical expansion. Such profits may be called "paper profits." When the almost inevitable fall comes, the plant is worth no more than before unless it has been made larger and better. However, some business men do realize great real profits, and if they escape final disaster in the crisis or panic they may be enriched as the result of the business cycle.

The higher money wages of the workmen, more often than not, are more than offset by the higher cost of living, so they represent

no real gain. The more steady employment in the period of expansion is a gain, but, as already stated, this is offset by the less steady employment during the period of depression. It is sometimes said that although the workmen make no real gain during the period of rising prices and expansion, they nevertheless gain indirectly from the rise in prices and wages. After the crisis, when prices fall, wages fall less rapidly than prices, and the workers tend to remain on a higher level of wages than before. That is to say, when the period of depression returns, the workers are enjoying higher wages than in the previous period of depression. But again we must note an offsetting disadvantage. During the period of declining prices and depression there is widespread unemployment. It is the period, too common for a country as well endowed by nature as the United States, of soup houses and bread lines. Possibly, too, real wages would have risen if the expansion of credit had not occurred.

During the period of rising prices and inflation many people must live on stationary incomes — salaries tend not to rise or to rise very slowly. People dependent upon incomes from investment in bonds and mortgages suffer hardships. They must often economize beyond the limits of health and comfort. On the other hand, people enjoying abnormal incomes are often engaged in wild sprees of lavish expenditure, which, in the eyes of the less fortunate, adds insult to injury.

The expensive tastes developed by the temporarily prosperous business men and wage-earners represent in the last analysis economic waste. In another way waste is caused by the period of expansion and easy credit. Since almost any business man seems able to make money and borrow money, new and reckless business enterprises are encouraged, and reckless expansion of old and formerly conservatively managed enterprises is stimulated. When the final crash comes, it becomes apparent that much labor and many materials have been wasted in buildings and equipment serving no useful purpose — industrial equipment provided to produce something not wanted, or provided in excess of the amount required to produce what is wanted. Under more stable conditions, with profits harder to make, such wasteful projects are less likely to be undertaken.

19. Are crises and depressions blessings in disguise? The crises

and depressions are sometimes depicted as blessings in disguise. They weed out the less efficient business men, leaving the more able in possession of the field. As one writer puts it, they are storms that blow down the rotten timbers, so that thereafter it is safer to walk through the business forest. Furthermore, they chasten and subdue those who have acquired during the period of prosperity a taste for high living and extravagance. This represents, however, no net gain realized from the business cycle. It means merely that the evils generated in one phase of it may be killed by the succeeding phase. It might be added, too, that although old Doctor Hard-times operates pretty effectively in removing from the economic system unsound growths generated during a period of high living, his surgery is a trifle rough and his fee excessive. Wholesale business failures, with not a few suicides. Millions of men unemployed for months. Millions of workmen with their dependents suffering from undernourishment and lack of medical attention. Privation that tempts many to crime. Widespread unrest and distrust of existing economic institutions, particularly a very general belief in the doctrine that bankers deliberately engineer the crisis for selfish purposes. Some form of preventive medicine would seem preferable to the rough and heroic surgery of old Doctor Hard-times. On this phase of the subject more will be said in the next chapter.

20. **Increase in the supply of money and expansion.** It should, perhaps, be pointed out in conclusion that the period of expansion may be the result in part of an increase in the money supply, rather than merely an increase in bank credit. This increase in the money supply may come from three possible sources other than from banks in the form of bank notes, which represent merely one form of bank credit. It may come from an increase in gold production, from a favorable balance of trade leading to gold imports, or from the government printing press. The periods of expansion and prosperity in the United States from 1896 to 1914 were partly the result of increased gold production in the world at large. The period of expansion culminating in the crisis of 1920 was partly the result of imports of gold from Europe during the war, which made possible a greater expansion of bank credit than would otherwise have been possible. In Germany a period of expansion following the war grew

largely out of the inflation of the currency with government paper money.

EXERCISES

1. Name the stages of the business cycle in the order of sequence.
2. What is the relation between the various stages of the business cycle and bank loans?
3. How are wage-earners affected by the various stages of the business cycle? How are business profits affected?
4. During a business crisis, why does the failure of one concern tend to bring about the failure of others?
5. If banks could continue making unlimited loans during the boom period and still maintain sufficient cash reserve, would a business crisis nevertheless be likely to appear? Why, or why not?

REFERENCES

I

Ely, R. T. *Outlines of Economics* (1923 edition), chapter 17.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 25.
Moulton, H. G. *Money and Banking*, part II, sections 73–74 and 82–84.
Vanderblue, H. B. *Problems in Business Economics*, chapter I.

II

Adams, A. B. *Economics of Business Cycles.*
Mitchell, W. C. *Business Cycles.*
National Bureau of Economic Research. *Business Cycles and Unemployment*

CHAPTER XXX

GOVERNMENT REGULATION OF BANKING IN THE UNITED STATES

1. Requisites of sound financial conditions. A government that desires to maintain sound financial conditions for its people must not only refrain from the issue of fiat paper money, but must regulate the banking system of the country in such a way as to prevent the fraudulent and reckless expansion of credit. It is necessary to protect the people not only from dishonest bankers who issue notes and accept deposits with intent to defraud by refusing to redeem their notes and honor checks against deposits, but from such recklessness of individual bankers and the bankers collectively in making loans and issuing bank notes that maintenance of specie payment becomes impossible and financial panics inevitable. A Government must, in short, guard against inflation through the medium of fiat money, the medium of bank notes, and the medium of bank deposits created by loans to depositors. In this our own Government has not been highly successful, although its record is not worse than that of many others.

2. We have suffered little from government paper money. With fiat money we have had only one experience under the Constitution, an experience that grew out of the Civil War, when $450,000,000 of government paper money was issued which became inconvertible, depreciated in value, and drove gold from circulation, and was partly responsible for the panic of 1873. Before our present form of government was established, however, both the States individually and the Continental Congress had issued irredeemable paper money which led to serious financial disturbances. In some respects the purchase of silver under the Silver Purchasing Acts of 1878 and 1890, and its coinage into silver dollars, was similar to the issue of paper money. It had a similar effect on the price level, tended to crowd the better money, gold, out of circulation, and played an important part in bringing on the panic of 1893. The exporting of the gold which the silver money displaced threatened for a time the Government's ability to maintain redemption on demand of the green-

backs still in circulation as a relic from the Civil War and as a monument to the power of the "we want more money" people whose influence kept this paper money in circulation. If the Government as well as the banks had suspended cash payment in 1893, the panic and its results would have been infinitely worse than they were.

3. Our Government has not prevented unsound expansion of bank credit. Our worst financial troubles, however, have not come from positive action by the Federal Government in causing inflation, but in the negative action of doing little to prevent inflation by expansion of bank credit. Our Government's sin has, in fact, been one of omission rather than emission. The panics of 1819, 1837, and 1857, with their demoralizing effects, were the natural result of the reckless overissue of bank notes by banks chartered by the States and even by banks owned and operated by the States themselves. The panics of 1893 and 1907, and other lesser disturbances, resulted largely from overexpansion of bank deposits created by loans. Our National Government has at various times, however, taken important steps to curb reckless banking and to organize our banking system on a sounder basis, and to this national regulation of banking we will now turn our attention.

4. The First and Second Banks of the United States. In 1791, Congress chartered the First Bank of the United States. This bank was partially owned and controlled by the United States Government, and one of its functions was to serve as a regulator of the currency. It had the right to issue bank notes in limited amounts, with proper provision for prompt redemption, and it refused to accept as money the bank notes of other banks which would not redeem their notes upon demand. It was thus able to exercise a strong influence in favor of sound money. Unfortunately, it fell a victim to politics, and when its charter expired at the end of twenty years, in 1811, it was not renewed. Partly as a result of the absence of such a regulating agency, the country was thrown into financial chaos during the War of 1812–15.

In 1816, the Second Bank of the United States was established, chartered by Congress, like the first, for twenty years. It was practically a duplicate of the First Bank of the United States, but on a larger scale. At first it was mismanaged and got involved in in-

flation itself along with state banks, and thus helped to bring on the panic of 1819. Later, it was better managed and performed useful service to the country in promoting a sound currency by bringing pressure to bear on state banks to redeem their notes promptly. Like its predecessor, it fell a victim to politics and came to an inglorious end in 1836, to the misfortune of the country. From 1836 to 1863 the country had little protection against reckless banking except the very ineffective regulation by State Governments.

5. The National Banking System and national bank notes. In 1863, in order to facilitate financing the war, the United States Government established the National Banking System. The two main purposes of the Government were to provide a safe and sound bank-note currency and to provide a better market for the bonds it was issuing to pay the costs of the war. Under the National Banking Act all banks taking out a charter from the National Government, and thus becoming members of the National Banking System and subject to regulation by the National Government, were given the privilege of issuing bank notes, called "national bank notes." But before issuing such notes they had to buy United States Government bonds to an amount equaling or exceeding the par value of the notes they issued, and deposit these bonds in the Treasury of the United States as security for the notes. In addition, the banks had to keep a cash deposit with the Treasury amounting to five per cent of the value of their outstanding notes, as a fund with which the Government could promptly redeem notes presented for redemption.

Since, however, banks chartered under State Governments already had the note-issue privilege under less severe restrictions, banks did not flock into the National Banking System as anticipated, and to bring them into the fold Congress passed an Act in 1865 taxing bank notes of state banks ten per cent per annum. This made the issue of bank notes by state banks unprofitable and encouraged state banks to enter the National Banking System. After 1865, then, our bank notes were as safe as government bonds, since they were all secured by bonds, pledged with the Government, which could be sold to redeem the notes if the note-issuing bank failed. Since there could be no more notes issued than the amount of government bonds bought by the banks, there was little danger of

serious overexpansion. As to the advisability of regulating the amount of bank notes in a country by the amount of government bonds, we shall have more to say later.

6. Reserve against deposits under the National Banking System. In the Act of 1863, Congress undertook to prevent unwise expansion of deposits by requiring that all national banks keep a minimum reserve. National banks were divided into three classes, called "central reserve city banks," "reserve city banks," and "country banks." Central reserve city banks were the banks located in New York, Chicago, and Saint Louis. Reserve city banks were the banks located in about forty other large cities of the country. Country banks were banks located in all other cities and towns. The law provided that country banks should keep a cash reserve of fifteen per cent against deposits, but might keep three fifths of this reserve on deposit with a reserve city bank or central reserve city bank. Reserve city banks were required to keep a cash reserve of twenty-five per cent, but might keep one half of it on deposit with a central reserve city bank. Central reserve city banks were required to keep a cash reserve of twenty-five per cent, all in their own vaults.

It was thought that these reserve requirements would prevent reckless expansion, and that the privilege given to the country banks and the reserve city banks of depositing part of their reserves in other banks would be useful to them in providing for payments they would be likely to have to make in these banking centers in the natural course of business, and would add to the resources of the banks in the central reserve cities.

The National Banking System was a marked improvement over what we had before. It gave the country bank notes that were as safe as government bonds and safeguarded to some degree from dangerous inflation, and all the banks of the National Banking System were subject to frequent inspection by the Federal Government agents without notice, and were thus required to keep their affairs in a fairly sound condition. But it had some serious defects, the chief faults of the system being that it did not prevent dangerous inflation of bank credit through deposits created by loans and provided no machinery that would prevent such inflation from resulting in financial panics. To these defects we will now turn.

7. Why many banks did not join. Many banks did not enter the

National Banking System, and to these the cash reserve provisions of the National Banking System did not apply. However, since these had to meet some cash reserve requirement of the States and could not inflate the currency by bank-note issue, this was not a very important defect. Many state banks thought they had as much to lose by joining the National Banking System as to gain. By joining, they would gain the note-issue privilege and the prestige that would come from being known as national banks. But in order to get this note-issue privilege they had to tie up large sums in government bonds to be pledged as security for their notes. Furthermore, the cash reserve requirements and other phases of federal regulation were more burdensome than the restrictions to which state banks were subjected.

8. Value of the note-issue privilege. It has been erroneously believed by many that by the note-issue privilege the Government conferred a special favor of great value on national banks — something akin to graft. It has been pointed out that the banks could take $100,000 in cash, buy government bonds, which would yield them, let us say, four per cent, or in more recent years two per cent, and by depositing these bonds with the Government, receive $100,000 in bank notes, which they could lend to their customers, at, let us say, six per cent. By this it has been implied that banks would get double interest on their money. People who hold these views do not understand the fundamental principles of commercial banking. To any one who has followed the discussion of bank credit in the two preceding chapters, it is obvious that the $100,000 in cash required to buy bonds as a basis for the issue of $100,000 in notes would have served as an adequate cash reserve for deposits created by loans of $500,000, or $600,000, or more. The interest on these loans would by far exceed the $8,000 or $10,000 a year realized from the interest on the bonds and the loans of $100,000 in the form of bank notes.

Provided that the banks enjoyed a great demand for loans, they could do better by keeping their cash as reserves against deposits than by buying bonds as a basis for note issues. Against bank notes national banks had to keep a reserve of practically one hundred per cent in government bonds, a cash reserve of five per cent in Washington, and some additional cash reserve for such notes as might be

presented for redemption at their own counter. Against deposits state banks in some cases had to keep a reserve of less than fifteen per cent. In some cases the banks were glad to use the note-issue privilege because some people for some purposes prefer a loan in the form of notes to a loan in the form of a deposit. A bank may thus gain additional business by making loans in both ways.

9. What constitutes an ideal banking system. Criticism of a banking system and of government regulation of banking becomes more intelligible to the reader if the critic first sets up an ideal which a good banking system ought to strive to realize. Since it is probable that the highest degree of welfare will be enjoyed by the people as a whole when there is a high degree of stability of prices, the banking system should be operated with an eye mainly to maintaining a stable price level, and particularly to preventing those sudden shifts in the level of prices which result from inflation, crises, and panics. It ought to mitigate, if not prevent, the evils of the business cycle. To a large degree an intelligently operated and regulated banking system could accomplish this purpose by wise manipulation of bank credit. A banking system ought at all times to provide money and credit enough to take care of business enterprise without financial strain, but never so much money and credit as to permit a sharp general rise in prices. Indeed, it might be best if no general rise were permitted at all, save under exceptional circumstances, although in this not all economists are agreed. Exceptional circumstances would exist if heavy production of gold raised the general price level of the world. If then restriction of bank credit kept prices down in some one country, gold imports would follow, and as a result of the flood of gold prices might rise in spite of bank-credit restriction. Another exceptional case under which stabilizing prices by manipulation of credit would be even less desirable is the case of a falling world level of prices, such as occurred between 1870 and 1895. Expansion of bank credit then to keep prices from falling would lead to exports of gold and suspension of specie payment. Our own attempt to maintain our prices above the world level by injecting silver and greenbacks into circulation illustrates the trouble that might be caused. But in the absence of such world-wide changes in the price level, the ideal banking system would strive for stability of prices within the country.

To maintain a stable level of prices and absence of credit strain a banking system must permit credit to expand and contract from year to year, and from season to season, with the physical volume of trade, to the end that the quantity of money in the country plus the quantity of credit will permit the existing volume of trade to be carried on without a disturbance in the general level of prices. The banking system must provide, in other words, an elastic currency. Let us note now in what respects the National Banking System fell short of our ideal.

10. Note issue under National Banking System inelastic. The issue of bank notes under the National Banking System was inelastic. The quantity of notes issued depended more upon the amount of government bonds outstanding and their market price than upon the physical volume of trade. When these bonds were cheap, it paid better to buy them and issue bank notes than when they were dear. At the best the issue of bank notes did not expand much to meet expansion of trade, and at the worst the issue contracted when more money was most needed for business. When a bank, for example, was hard pinched for cash reserves and its government bonds could be sold above par, let us say, at $1020 for a $1000 bond, then it could sell such a bond for $1020, redeem the $1000 in notes secured by it, reclaim the five per cent cash reserve against these notes from the Treasury, amounting to $50, and thus add $70 net to its cash reserve. The bank thus improved its own position, but reduced the total amount of money in circulation by $1000, or more accurately, by $950, since it might now put the $50 it got from the Treasury into circulation.

11. Deposits subject to inflation and reserves inadequate in time of need. Deposits created by loans under the National Banking System could expand with the needs of trade, but there was nothing to prevent them from expanding so rapidly as to cause inflation, and under the operation of the forces of the business cycle they had a tendency to rise to the limit permitted by the legal reserve requirements. Once they were at or near that limit, financial trouble might be precipitated by any one of several causes. Before taking up a consideration of these causes of trouble, we must remind the reader of the fact that the country national banks could keep three fifths of their cash reserve in the national banks of reserve cities and

central reserve cities, and the national banks in the reserve cities could keep half of their reserves in the national banks of the central reserve cities. Since the banks pretty generally availed themselves of this privilege, partly for the sake of interest paid on such deposits, it followed that the total cash reserves of all the national banks were less than appeared on the surface. In 1907, for example, more than half of the cash reserves of the country banks was on deposit with reserve city and central reserve city banks, and almost half of the reserves of reserve city banks was on deposit with central reserve cities; and these reserves on deposit constituted the major portion of cash reserves of the banks with which they were deposited. The same cash was, therefore, counted twice and sometimes three times as cash reserve — first of the country banks, then of the reserve city banks, and finally of the central reserve city banks. Furthermore, all three classes of banks were practically down to the legal minimum of cash reserves. Any attempt on the part of the country banks and the reserve city banks to take home their cash reserves would have left the banks in the central reserve cities practically without any cash at all. Even for them to withdraw a small part of their reserves was impossible without bringing the central reserve city banks below the legal limit.

Another important point to note is this: The legal cash reserves of the national banks of all three classes constituted not a reserve from which cash payments might be made, or which might be used as the basis of further loans, but a dead line beyond which it was unlawful for the banks to go. Now let us note how trouble might occur.

12. Causes of strain. During the crop-moving season more cash than usual is required for pocket money and there is a drain on the banks' supply of cash. Farm hands are paid money wages. Farmers often insist upon cash in payment for their crops. Another drain on cash from which national banks suffered arose from the Independent Treasury System — the United States Government keeping its money in its own strong boxes instead of on deposit in banks. Since many payments to the Government must be made in money, payments to the Government resulted in cash being withdrawn from banks, and since the Government then locked this cash up until it spent it again, a considerable interval might elapse before

this money returned to the banks as cash deposits. Exports of gold to meet an unfavorable balance of trade might also result in loss of cash reserve from the banks. Such exports of gold are most likely to occur during the period of high prices resulting from inflation of bank credit, when cash reserves are likely to be near the legal minimum. Now suppose that for one of these reasons, or some other reason, heavy demands for cash had been made on the banks when their reserves were only slightly above the legal minimum. They would have had to violate the law by paying out cash and letting their reserves fall below the legal limit, call in some loans and thus increase their reserve ratio, or refuse to pay out cash. The first expedient would have brought them into trouble with the government inspectors. The second might have precipitated a crisis by causing the failure of some business concern. The third would have been an acknowledgment of inability to honor their checks or redeem their notes. It would have been the beginning of a crisis and a financial panic. When such a state of affairs developed in the National Banking System, what was the remedy to cure the trouble and prevent the crisis and the probable financial panic? There was no remedy at hand. The crisis, and possibly the panic, came. There was nothing to do but grin and bear it or devise a more intelligent banking system. The people grinned and bore it for fifty years, and then devised and adopted the Federal Reserve System.

13. **The Federal Reserve System.** The Federal Reserve System was provided for by the Federal Reserve Act of 1913 and put into operation in 1914. It may be described as consisting of three parts — the Federal Reserve Board, the twelve Federal reserve banks, and the member banks. The Federal Reserve Board consists of eight members (originally seven). Six of these are appointed by the President for a term of ten years, and the other two become *ex-officio* members as Secretary of the Treasury and Comptroller of Currency.

The federal reserve banks may be called bankers' banks, and one is located in each of the twelve Federal Reserve Districts, the Federal Reserve Bank of District No. 1, for example, being located in Boston, of District No. 2, in New York, and so on. Each of these twelve banks is governed by a board of nine directors, of whom three are appointed by the Federal Reserve Board, and the other six

elected by the stockholders of the respective federal reserve banks. The stockholders of each of the federal reserve banks are the member banks of its district. These member banks are all national banks, which were compelled to join the system or give up their charters, and all state banks and trust companies which are willing to join the system and to meet certain conditions imposed on member banks.

Member banks are required to subscribe to the stock of their federal reserve bank six per cent of their own capital stock. For example, a member bank with capital stock of $100,000 must buy $6000 worth of stock in its federal reserve bank.

14. Member banks and cash reserves. Member banks are divided into three classes on the same basis as under the National Banking System, namely, country banks, reserve city banks, and central reserve city banks. Country banks are required to keep a minimum cash reserve against demand deposits of seven per cent, member banks in reserve cities, of ten per cent, and member banks in central reserve cities, of thirteen per cent. In addition, all member banks must keep a three per cent cash reserve against time deposits. All these required reserves must be kept on deposit with the member banks' respective reserve banks. Naturally, this compels the member banks to keep some additional cash on hand over and above the legal reserve to meet day-to-day demands.

Member banks do not have the note-issue privilege except the privilege that some of them retain under the National Banking Act of issuing notes secured by government bonds. It is expected that in time the federal reserve banks will take over from their member banks the right to issue these notes. If the national banks had been deprived of this privilege suddenly, the bonds they had bought to secure the notes, yielding only two per cent, would have fallen in market value and they would have suffered a severe loss.

15. Reserve banks and cash reserves. The federal reserve banks are given the power to issue bank notes called "federal reserve notes," and the right to take over the issue of the old national bank notes from their member banks. These notes when taken over by the reserve banks are called "federal reserve bank notes," and should be carefully distinguished from the more important federal reserve notes, which under the Federal Reserve System have become our most important kind of paper money.

The federal reserve notes issued by the reserve banks they obtain from the Federal Reserve Board upon depositing with the Board forty per cent of the face value of the notes in gold and sixty per cent of the face value of the notes in commercial paper. We cannot here explain in detail the nature of this commercial paper, but it may be said, in brief, to consist of short-term promises of business men to pay, in the form of promissory notes, drafts, etc. The source of this commercial paper we will note in a moment.

The reserve banks are required to maintain, in addition to their forty per cent reserve against reserve notes, a reserve of thirty-five per cent in gold or lawful money against deposits. The deposits of the reserve banks come primarily from their member banks and from the Government. They accept no deposits from individuals. Deposits from member banks may arise in three ways: First, when member banks deposit with the reserve banks their legally required cash reserve. Second, when they deposit other cash, or checks, etc. Third, when they borrow from the reserve banks, and receive the loans not in cash or notes, but in the form of deposits. The original cash reserves of the reserve banks consisted of the member banks' cash subscribed for stock and the member banks' legally required cash reserves. Not all these reserves had to be paid in at the beginning, nor did the member banks have to pay in full for their stock at the beginning.

16. Reserve banks are bankers' banks. Federal reserve banks bear about the same relation to their member banks that member banks bear to their customers. For this reason we may call them "bankers' banks." In them member banks must keep their legal reserves and may keep other deposits, and to them they turn for loans. A member bank desiring to borrow from its reserve bank may under certain circumstances pledge, as security for the loan, government bonds. But the chief provision made for such borrowing is that related to what is called "rediscounting."

It will be recalled that when a merchant or other business man borrows from his commercial bank he commonly gives as security for the loan his promissory note, which the bank "discounts," giving him, for the discounted value of the note, a loan in the form of cash, bank notes, or a deposit subject to check. Similarly, when a member bank wants to borrow from its reserve bank, it may give

the reserve bank as security for the loan commercial paper, one important form of which is the promissory note. This loan may likewise be given in the form of cash, bank notes, or a deposit subject to check. This process is called "rediscounting," because the commercial paper given to the reserve bank is not the member bank's own promise to pay, but the promissory notes of its customers which it has discounted. Having once discounted these, it now rediscounts them, or rather the reserve bank rediscounts them. When these rediscounted promissory notes mature the original borrowers pay the sums due, not to the member bank from whom they borrowed, but to the reserve bank that now holds their notes. The member bank, however, ordinarily collects for its reserve bank the sums due.

17. **Rediscounting illustrated.** Since students often are puzzled by the description of this rather simple process, we will illustrate it by an example. Jones, the haberdasher, gives his promissory note for $1000 payable in three months to his local bank, a member of the Federal Reserve System. The bank discounts it at the annual rate of 6 per cent, and credits Jones with a deposit of $1000 less 1.5 per cent, or $985. Now, if the local bank wants to borrow from its reserve bank, it may send the note of Jones (together, perhaps, with other promissory notes) to the reserve bank to be rediscounted, first endorsing the note and thereby making itself responsible for payment if Jones fails to pay. If the reserve bank's rediscount rate happens to be 4 per cent a year, it credits the local bank with $1000 less 1 per cent, or $990.

While we call this process rediscounting, we might just as well call it selling the note. Jones sold his note to the local bank for $985, and the local bank sold it to the reserve bank for $990. It made a profit because its own discount rate was higher than its reserve bank's rediscount rate.

18. **Why member banks borrow.** Let us see now why member banks may want to borrow from the reserve banks. Commercial banks, as has been pointed out, make most of their profit by making short time loans to business men — discounting their promissory notes and giving them the proceeds in the form of deposits subject to check. It is to the banks' advantage to make as many such loans as they can, provided ample security is offered. But every such

loan tends to reduce the reserve ratio, for reasons given in detail in Chapter XXVIII. The time comes eventually, if a bank keeps on expanding its loans and thus its profits, when additional loans will reduce its cash reserve below the legal limit. Not only that, but the supply of ready cash which it must keep on hand to meet day-to-day demands may become dangerously small. If the bank could not borrow now, it would have to refuse further loans until some of its old loans were repaid or until somebody happened along with some cash to deposit. But the reserve bank stands ready to help the member bank in the emergency by just such a transaction of rediscounting as that illustrated in the preceding section.

19. Rediscounting and expansion of loans. Suppose, for example, that the member bank in question is located in a reserve city and must therefore keep a legal reserve of ten per cent against deposits, and that it requires for safety another five per cent of cash reserve against deposits in its own vaults. Suppose it has deposits of $1,000,000, and cash reserves of only $150,000 ($100,000 in its reserve bank, and $50,000 in its own vault), and suppose that it has the opportunity of making additional loans of $100,000 at six per cent, which would increase its income $6000 a year. Its reserves are already as low as the law and safety permit, and to grant the new loans would reduce them below the limits of the law and safety.

The member bank may under such circumstances select, from among the promissory notes it has discounted for its customers, notes of a suitable character amounting to perhaps $20,000, and send them to its reserve bank for rediscounting. If the reserve bank's rediscount rate is four per cent and the notes are due in three months, the sum realized will be $19,800. The member bank might leave $10,000 of this sum on deposit with the reserve bank as an addition to its cash reserve, and take the rest in the form of cash, possibly in federal reserve notes. The $10,000 additional reserve at the reserve bank would be ten per cent of $100,000, and therefore the basis of another $100,000 in loans by the member bank. The $9800 it took in the form of cash would afford an ample addition to its supply of ready cash at home.

If a little later the bank desires to expand loans further, it can repeat the operation. In fact, it can repeat the operation indefinitely, since every loan at the reserve bank will provide it with reserves

against new deposits created by loans to its customers, and the promissory notes it receives in making these new loans will provide the means of securing more loans at the reserve bank, and so on round after round. Such expansion would be highly profitable to the member bank, and so long as the reserve bank freely rediscounted its commercial paper, it would have no limit short of the demand of its customers for loans. It would, however, be rather dangerous, since the bank is responsible for the ultimate payment of every promissory note it rediscounts — making itself thus responsible when it endorses these notes. In this way it builds up great "contingent liabilities" — liabilities that it must bear if the original signers of the notes fail to pay. Because of the danger that lurks in these contingent liabilities, conservative bankers make only moderate use of the rediscounting operation. They avoid what they call pyramiding of loans.

20. **Effect of expansion on reserve banks' reserve ratio.** Next we must note the effect on the reserve bank itself of the operation just described. Reserve banks, like member banks, cannot make loans without reducing their cash reserve ratio. They can grant loans in only four ways — in gold or other lawful money; in federal reserve bank notes; in federal reserve notes; and in deposits. No matter in which of these ways a reserve bank expands its loans, it reduces its cash reserve ratio. If it makes the loans in cash, it reduces the cash supply, leaving the deposits and outstanding notes the same. If it makes the loans in federal reserve bank notes, it ties up an equivalent amount of cash in government bonds. If it makes the loan in reserve notes, it increases the amount of outstanding reserve notes, leaving its cash the same. If it makes the loan in the form of a deposit, it increases deposits, leaving its cash the same. Expansion of loans by the twelve federal reserve banks, therefore, tends to reduce their cash reserve ratio, and, if continued, inevitably brings them down to the legal minimum unless the supply of gold produced in the country or imported increases in proportion to the loan expansion and finds its way into the reserve banks.

21. **Limits of expansion.** The question may be asked: Suppose a reserve bank desires to expand loans, perhaps to stave off a financial panic, after its cash reserve is down to the legal minimum of thirty-five per cent against deposits and forty per cent against

reserve notes; can it do so? Yes, in times of emergency the legal limit may be suspended and the reserve ratio be permitted to sink below the legal minimum. As a penalty, a graduated tax is placed upon such deficiency in reserves.

The gold or lawful money that the reserve banks have over and above the required legal reserves of thirty-five per cent against deposits and forty per cent against reserve notes may be called their "excess reserve." The excess reserve is an index of the amount by which the reserve banks may further expand loans to member banks without suspension of the legal reserve requirements. For every dollar of excess reserve a reserve bank can expand loans in the form of gold or lawful money to the amount of $1; in the form of federal reserve notes, to the amount of $2.50; and in the form of deposits, to the amount of $2.85. Loan expansion can be carried to greater limits, therefore, by means of deposits than in any other way.

Let us note further at this point that for every dollar extended in loans by reserve banks to member banks, the member banks in central reserve cities may expand loans in the form of deposits to their customers by $7.69; member banks in reserve cities may expand loans by $10; and member banks in other cities may expand loans by $14.28; provided that the member banks use the whole of the loan in the form of deposits in the reserve banks to build up their legal reserves. They would normally, however, use part of their loans to increase their cash supply on hand to meet day-to-day demands, so the possible expansion indicated is somewhat in excess of anything that would be likely to occur. But making allowance for the member banks' requirements in the way of cash on hand, it is quite conceivable that for every dollar of excess reserves of the reserve banks, loans of member banks could be expanded on the average by $20. Excess reserves of $1,000,000,000 in the hands of the reserve banks might permit bank loan expansion of $20,000,000,000.

22. Inflation easy under Federal Reserve System. It is obvious from the foregoing discussion that the Federal Reserve System is an admirable engine for the inflation of the currency, provided the reserve banks acquire large cash reserves and are willing to use them. There is no adequate provision in the Federal Reserve Act, with its amendments, to prevent such inflation. Now it happened as a re-

sult of the war that enormous quantities of gold were imported into this country, and that through the operation of the Federal Reserve Act and its amendments this gold found its way largely into the federal reserve banks, where it did become the means of credit inflation in the period following the end of the war and the chief cause of the severe crisis of 1920 and the depression of 1921.

Further large imports of gold since the war have maintained the gold reserve of the reserve banks at a dangerously high level. On page 574 is given the statement of the combined resources and liabilities of the twelve federal reserve banks on May 5, 1926, in thousands of dollars.

The reader may note that total reserves amounted to $2,950,581,000, and that the ratio of total reserves to deposit and federal reserve note liabilities combined was 74.5 per cent. The required legal reserve of 35 per cent against deposits and 40 per cent against reserve notes amounted in round numbers to $1,469,000,000. The excess reserves over and above this legal minimum amounted, therefore, to $1,481,000,000. In other words, the federal reserve banks were in a position on May 5, 1926, to double their reserve note and deposit liabilities without falling below the legal reserve ratio. These great excess cash reserves of the federal reserve banks, ever since the recovery from the period of depression following the crisis of 1920, have menaced the country with another period of inflation. Whether or not inflation is to occur depends very largely upon the action of the small body of officials in control of the federal reserve banks.

23. A good financial shock absorber, but not an ideal banking system. From what has just been said it may be concluded that the Federal Reserve System does not represent an ideal banking system. It lends itself too readily to inflation of bank credit. As a matter of fact, there seems to have been no clear design on the part of its makers to prevent its use as an engine of credit expansion, although, if Congress could have foreseen the great flood of gold imports, it is possible that the gold reserve provisions would have been made higher or some other measure taken to avert the danger of such extreme inflation as is possible at present. Primarily the Federal Reserve System was designed to operate as a financial shock absorber — to prevent financial panics from resulting after credit expansion — rather than as a means of preventing the de-

Resources	Thousands
Gold with Federal Reserve agents	$1,414,141
Gold redemption fund with United States Treasury	45,892
Gold held exclusively against Federal Reserve notes	$1,460,033
Gold settlement fund with Federal Reserve Board	700,106
Gold and gold certificates held by banks	632,397
Total gold reserves	$2,792,536
Reserves other than gold	158,045
Total reserves	$2,950,581
Non-reserve cash	57,198
Bills discounted:	
Secured by United States Government obligations	302,280
Other bills discounted	244,901
Total bills discounted	$547,181
Bills bought in open market	213,384
United States Government securities:	
Bonds	99,092
Treasury notes	162,513
Certificates of indebtedness	133,721
Total United States Government securities	$395,326
Other securities	4,635
Foreign loans on gold	7,500
Total bills and securities	$1,168,026
Due from foreign banks	686
Uncollected items	644,473
Bank premises	59,554
All other resources	16,831
Total resources	$4,897,349
Liabilities	
Federal Reserve notes in actual circulation	$1,672,016
Deposits:	
Member bank — reserve account	$2,230,801
Government	27,785
Foreign bank	5,227
Other deposits	22,225
Total deposits	$2,286,038
Deferred availability items	581,175
Capital paid in	122,186
Surplus	220,310
All other liabilities	15,624
Total liabilities	$4,897,349
Ratio of total reserves to deposit and Federal Reserve note liabilities combined	74.5%
Contingent liability on bills purchased for foreign correspondents	65,509

velopment of business cycles with their periods of wild expansion, their crises, and their periods of depression.

As a financial shock absorber it has served admirably and in marked contrast to the National Banking System. It undoubtedly prevented the crisis of 1920 from degenerating into one of the worst panics in our history. Although the Federal Reserve System per-

mitted the expansion that led to the crisis, we should remember that the old system would probably have done the same. When the crisis came, the federal reserve banks saved the situation. When their reserves began to approach dangerously near the legal minimum, they raised their rediscount rates and otherwise discouraged loans, and thus put a damper on the wild speculation that had developed in the stock market and the commodity markets. When the inevitable fall in prices came, the reserve banks utilized their reserves to extend necessary loans to member banks, who thus were enabled to maintain cash payments and to make loans to their customers, tide them over the period of stress, and save from ruin those who were not hopelessly involved by their own recklessness. It is probable, too, that other crises and panics would have developed under the financial strains of the war years if the Federal Reserve System had not been in operation.

24. Federal Reserve System could stabilize prices. The Federal Reserve System is by far the best banking system we have ever had in this country and it should by all means be retained.[1] In the opinion of the writer it would be improved if Congress would authorize and require the Federal Reserve Board to maintain a credit policy designed to stabilize prices. The Federal Reserve System could readily be made an efficient instrument of price stabilization by means of the rediscount rate and its so-called open-market operations.

Rediscounting has already been sufficiently described. It takes place when a federal reserve bank rediscounts commercial paper, such as is represented by promissory notes, for a member bank. It is by this operation making a loan to a member bank at the latter's request. Open-market operations refer to the buying by federal reserve banks in the open market of various kinds of commercial paper, such as bills of exchange, trade acceptances, and bankers' acceptances. The exact character of such commercial paper that the reserve banks may buy is specified in the Federal Reserve Act and its amendments. In open market operations the reserve bank may take the initiative and need not wait for some member banks

[1] Originally the federal reserve banks were chartered for twenty years. By an amendment to the McFadden Branch Banking Bill of February, 1927, they were granted indeterminate charters.

in need of loans to ask it to buy or discount their paper. But rediscounting and open-market operations are alike in this: both represent a means of control by the reserve banks over credit expansion.

Now, if these means were to be utilized directly for the purpose of price stabilization, at the first positive indication of a rising price level the Federal Reserve Board would order the reserve banks to raise the rediscount rate and thus discourage further borrowing by member banks, which would thus discourage further lending by member banks to their customers, which would curtail buying and check the rise in prices. It might happen, however, that the member banks would be in a position to extend credit to their customers without much additional rediscounting at the reserve banks. Member banks could do this if they had large cash reserves. In this case, open-market operations might be resorted to. The reserve banks, having on hand considerable quantities of commercial paper which they had been buying during the preceding period of lower prices, would begin to sell this paper in the open market and cease buying any additional paper. They might also sell any government bonds or treasury certificates they held, and thus absorb from the open market large sums of money which would ultimately be drawn from bank reserves, and thus the lending power of the banks would be reduced, buying power curtailed, and the rise in prices checked. In case of falling prices, the reserve banks would pursue the opposite policy, reducing the rediscount rate and buying freely securities and commercial paper in the open market. This would not necessarily check falling prices in a period of waning business confidence. But it would make recovery easier and more prompt. Naturally, in a period of financial demoralization such operations of the federal reserve banks might have a negligible effect. But if the reserve banks were used to stabilize prices, the great rise in prices, which ordinarily causes financial demoralization in the end, would never take place. It seems quite probable that with a price stabilization policy in effect, there would be only minor price disturbances to contend with, except possibly in time of war, and that these minor disturbances could be readily corrected by the reserve banks, whether the movement were up or down.[1]

[1] Compare Chapter XXXI, Section 13.

25. The use of index numbers. Opponents of a price stabilization policy often ridicule the idea that prices can be stabilized, asserting that prices are determined by demand and supply, and that the prices of commodities cannot be controlled by Government or bankers. How, they ask, can the Federal Reserve System stabilize the price of wheat if the crop fails or turns out unusually well? Will the price of wheat not rise in the one case and fall in the other regardless of the rediscount rate of the reserve banks? It is obvious that such persons either do not understand what price stabilization means or desire to discredit it by misrepresenting it.

No one proposes to keep all prices stationary by the manipulation of federal reserve operations. Individual prices would still rise and fall in accordance with the principle that the market price must equalize demand and supply. What is proposed is a stabilization of the general level of prices — the average prices of commodities. This involves the use of an index number of prices. What an index number of prices is can be explained by means of a simplified example. Suppose we are considering three commodities, wheat, cotton, and copper, and suppose that the prices of these three commodities had been as follows:

	1913	1920
Wheat, per bushel	$1.00	$2.20
Cotton, per pound	.10	.35
Copper, per pound	.15	.30

We wish to construct an index number that shows the average rise in prices of these commodities from the year 1913 to the year 1920. There are various methods of doing this which are treated elaborately in books on statistics, some of them suitable for one purpose and others for other purposes. It will suffice for our purpose of illustration here to use a simple method — that of finding the average percentage increase in price as follows:

The price of wheat increased from $1.00 to $2.20, or to 220 per cent of its 1913 price.

The price of cotton increased from $0.10 to $0.35, or to 350 per cent of its 1913 price.

The price of copper increased from $0.15 to $0.30, or to 200 per cent of its 1913 price.

The average of these three increases is found by adding them together and dividing by three:

220 per cent plus 350 per cent plus 200 per cent equals 770 per cent.
770 divided by 3 equals 256.6 per cent.

Our index number of prices is therefore 256.6, and indicates that the average price of the commodities included was, in 1920, 256.6 per cent of their average price in 1913. The rise in prices has been 100 per cent less than that, since we start with 100 per cent in 1913. The rise has been, in other words, 156.6 per cent.

If now, instead of taking assumed prices of just three commodities, we take actual prices of a great number of important commodities and by some such process as the foregoing calculate the average rise in prices, we obtain an index of the general rise in prices. Many such indexes are currently constructed and published in various government publications and elsewhere. A widely quoted index number of prices is that of the United States Bureau of Labor Statistics. It shows the average level of wholesale prices in the United States expressed as a percentage of the 1913 price level. Approximately four hundred commodities are now included in this index and various statistical refinements are resorted to to make the index portray more accurately the actual price movements that occur. Another widely used index is that of Irving Fisher, which is published weekly and shows the average price level as a percentage of the 1913 price level.

If the Federal Reserve Board should undertake to stabilize prices through the federal reserve banks, it would need to construct some such index number of prices and then so regulate the operations of the reserve banks as to maintain the general level of prices as nearly as possible at a constant figure, as 150 per cent of the 1913 price level, or 100 per cent of the 1926 price level. Since the federal reserve banks already have well-developed statistical departments with a staff of competent statisticians, it would not be a difficult matter for them to construct the required index number. A bill providing for price stabilization through the Federal Reserve System — the so-called Strong Bill — was debated in Congress in 1926, but failed to pass. Should some such law be enacted, it would represent a direct application of the quantity theory of money to the practical affairs of Government and business.

26. Federal Reserve Board policy, 1922–26. Although not authorized by law to pursue a policy of price stabilization, it seems

that the Federal Reserve Board has as a matter of fact been applying such a policy during the last five years. The evidence of this is found in the relatively mild fluctuations in the level of prices and business activity during the years 1922-1926, and in the nature of the rediscounting and investment operations of the federal reserve banks. The banks seem to have pursued the policy of increasing their investment and open-market operations when the demands of the member banks for rediscounts have fallen off, and of reducing their investments when rediscounts have increased, so that their total amount of bills discounted and investments, which may be called the total reserve bank credit, has tended to fluctuate closely around $1,100,000,000. This is graphically illustrated in Figure 13.[1]

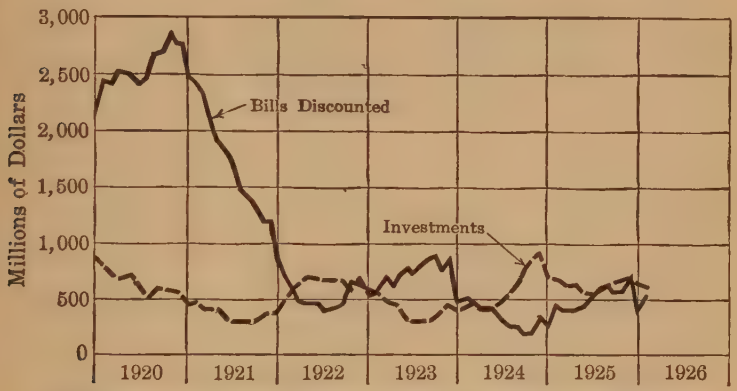


FIGURE 13. BILLS DISCOUNTED AND INVESTMENTS OF FEDERAL RESERVE BANKS

(From *Survey of Current Business*, April, 1926)

27. Stock of money of various kinds in the United States on May 1, 1926. Since in this chapter we have completed our discussion of the various kinds of money used in the United States, this seems a fitting place to introduce a recent statement of the United States Treasury Department, showing the stock of money in the country and in circulation, and some comparative figures for earlier years. The reader should note in particular in this statement the large amount of gold coin and bullion, and the large quantity of federal reserve notes. The statement must be studied carefully if it is to be

[1] A similar chart kept up to date may be seen weekly in *The Annalist*.

Circulation Statement of United States Money — May 1, 1926

Kind of Money	Stock of Money [a]	Total	Money Held in the Treasury				Money Outside of the Treasury				Population of Continental United States (estimated)
			Amt. held in trust against gold and silver certificates (and treas'y notes of 1890)	Res've against United States notes (and treasury notes of 1890)	Held for federal reserve banks and agents	All other money	Total	Held by federal reserve banks and agents [f]	In circulation		
									Amount	Per capita	
Gold coin and bullion	$ [b] 4,497,351,324	$ 3,732,779,313	$ 1,700,616,109	$ 154,188,886	$ 1,708,083,235	$ 169,891,083	$ 764,572,011	$ 309,861,892	$ 454,710,199	$ 3.94	
Gold certificates	[c](1,700,616,109)						1,700,616,109	601,403,555	1,099,212,554	9.54	
Stan. silver doll.	530,905,078	462,455,725	449,684,359			12,771,366	68,449,353	16,635,461	51,813,892	.45	
Silver certific's.	[c](448,320,055)						18,320,055	84,465,066	363,854,989	3.16	
Treas. notes 1890	[c](1,364,304)						1,364,304		1,364,304	.01	
Subsid'y silver	288,400,307	6,089,689				6,089,689	282,310,618	15,221,557	267,089,061	2.32	
U.S. notes	346,681,016	5,000,719				5,000,719	341,680,297	48,837,107	292,843,190	2.54	
F.R. notes	2,003,244,450	1,178,621				1,178,621	2,002,065,829	339,445,594	1,662,620,235	14.42	
F.R. bank notes	5,808,578	60,353				60,353	5,748,225	108,391	5,639,834	.05	
Nat. bank notes	704,183,679	16,646,003				16,646,003	687,537,676	32,513,204	655,024,472	5.68	
Total May 1, '26	8,376,574,432	[d] 4,224,210,423	2,150,300,468	154,188,886	1,708,083,235	[e] 211,637,834	6,302,664,477	1,448,491,827	4,854,172,650	42.11	115,286,000
Compar. totals:											
April 1 1926	8,336,418,140	[d] 4,225,959,392	2,150,180,686	154,188,886	1,696,135,735	225,454,085	6,260,639,434	1,454,754,598	4,805,884,836	41.73	115,168,000
May 1 1925	8,306,952,956	[d] 4,163,828,338	1,997,705,026	153,620,986	1,783,441,335	229,060,991	6,140,829,644	1,415,638,939	4,725,190,705	41.50	113,867,000
Nov. 1 1920	8,326,338,267	[d] 2,406,801,772	696,854,226	152,979,026	1,206,314,990	350,626,530	6,616,390,721	987,962,989	5,628,427,732	52.36	107,491,000
April 1 1917	5,312,109,272	[d] 2,942,998,527	2,684,800,085	152,979,026		105,219,416	5,053,910,830	953,320,126	4,100,590,704	39.54	103,716,000
July 1 1914	3,738,288,871	[d] 1,843,452,323	1,507,178,879	150,000,000		186,273,444	3,402,015,427		3,402,015,427	34.35	99,027,000
Jan. 1 1879	1,007,084,483	[d] 212,420,402	21,602,640	100,000,000		90,817,762	816,266,721		816,266,721	16.92	48,231,000

[a] Includes United States paper currency in circulation in foreign countries and the amount held by the Cuban agencies of the federal reserve banks.

[b] Does not include gold bullion or foreign coin outside of vaults of the Treasury, federal reserve banks, and federal reserve agents.

[c] These amounts are not included in the total since the money held in trust against gold and silver certificates and treasury notes of 1890 is included under gold coin and bullion and standard silver dollars, respectively.

[d] The amount of money held in trust against gold and silver certificates and treasury notes of 1890 should be deducted from this total before combining it with total money outside of the Treasury to arrive at the stock of money in the United States.

[e] This total includes $17,559,717 of notes in process of redemption, $147,747,183 of gold deposited for redemption of federal reserve notes, $9,993,337 deposited for redemption of national bank notes, $4365 deposited for retirement of additional circulation (Act of May 30, 1908), and $6,591,790 deposited as a reserve against postal savings deposits.

[f] Includes money held by the Cuban agencies of the federal reserve banks of Boston and Atlanta.

Note. Gold certificates are secured dollar for dollar by gold held in the Treasury for their redemption; silver certificates are secured dollar for dollar by standard silver dollars held in the Treasury for their redemption; United States notes are secured by a gold reserve of $154,188,886 held in the Treasury. This reserve fund may also be used for the redemption of treasury notes of 1890, which are also secured, dollar for dollar, by standard silver dollars, held in the Treasury. Federal reserve notes are obligations of the United States and a first lien on all the assets of the issuing federal reserve bank. Federal reserve notes are secured by the deposit with federal reserve agents of a like amount of gold or of gold and such discounted or purchased paper as is eligible under the terms of the Federal Reserve Act. Federal reserve banks must maintain a gold reserve of at least 40 per cent, including the gold redemption fund which must be deposited with the United States Treasury, against federal reserve notes in actual circulation. Lawful money has been deposited with the Treasurer of the United States for retirement of all outstanding federal reserve bank notes. National bank notes are secured by United States bonds except where lawful money has been deposited with the Treasurer of the United States for their retirement. A 5 per cent fund is also maintained in lawful money with the Treasurer of the United States for the redemption of national bank notes secured by government bonds.

understood, and to aid the reader the footnotes explaining in part the figures in the table have been inserted, just as they are found with the original Treasury statement.

EXERCISES

1. State concisely the conditions of note issue under the National Banking System; under the Federal Reserve System.
2. State the legal cash reserve requirements of all banks under the National Banking System; under the Federal Reserve System.
3. What should be the purpose of an ideal banking system? In what respects, if any, does the Federal Reserve System approach the ideal more closely than the National Banking System?
4. Suppose that a country bank of the Federal Reserve System has cash reserve of $100,000 in its federal reserve bank, and has no time deposits, how large may its demand deposits become without reducing its cash reserve below the legal limit? Suppose that having reached the legal limit, it rediscounts $50,000 of 90-day paper with its federal reserve bank at 4 per cent, how many additional loans may it then make in the form of demand deposits?
5. Suppose that a federal reserve bank has excess cash reserves of $100,000,000 in gold, how many millions of dollars may it lend to its member banks in the form of gold certificates? In the form of federal reserve notes? In the form of deposits?
6. Find the latest available statistics of total purchasing power in the United States in the form of money and bank deposits subject to check, and in the latest weekly statement of the Federal Reserve Board note the cash reserve ratio and the total cash reserves of the twelve federal reserve banks combined. Then, on the basis of the quantity theory of money and the equation of exchange, calculate roughly the probable rise in the general price level that would take place if expansion of bank loans continued until the federal reserve ratio were down to the legal minimum. Assume that all loans are made in the form of bank deposits, and that the reserve banks lend in equal amounts to all three classes of member banks.

REFERENCES

I

Edie, L. D. *Economics: Principles and Problems*, chapters 26 and 27.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 23.
Moulton, H. G. *Financial Organization of Society*, chapters 24 and 25.
Money and Banking, part I, chapter 7; part II, chapter 7.
Taussig, F. W. *Principles of Economics* (1921 edition), chapter 27.

II

Federal Reserve Board. Monthly Bulletins and Annual Reports.
Goldenweiser, E. A. *The Federal Reserve System in Operation.*
Reed, H. L. *Development of Federal Reserve Policy.*
Sprague, O. M. W. *Crises under the National Banking System.*

See also the references at the end of Chapter XXVIII, Group II.

CHAPTER XXXI

RISK, INSURANCE, AND SPECULATION

1. Risks of roundabout production for profit. The present roundabout system of production for profit involves the investment of capital and heavy operating expenses extending over a period of several years before the ultimate product of industry — consumers' goods — results from the long-drawn-out process. This not only gives rise to the problem of interest on producers' loans, which has already been considered, but accounts also for most of the risk in industry and provides the occasion for a great deal of speculation. Consider the risks that a producer would assume if he undertook single-handed to supply a thickly populated manufacturing section, such as our Northeastern States, with flour produced from wheat grown in a distant undeveloped section adapted to wheat-growing, but inaccessible for lack of railroads, as were the States west of the Mississippi before 1850. Among the operations he would need to carry through would be the building of thousands of miles of railroads, the development of farms in the wheat country, the building of mills and elevators. But before he could build railroads and mills and develop farms, he would need raw materials, machinery, and equipment of various sorts, for the production of which other raw materials, machinery, and equipment would be required, and so on back indefinitely, one might say, to the very beginning of the accumulation of capital. But even if we do not trace back the beginning of his project beyond the time required to build his railroads, mills, and elevators and to open up his farm lands with materials, tools, implements, and machinery already produced by others and bought at the market price, several years would still be required to carry through these stages of production and to put his flour on the market. During all these years of preparatory work, he would know neither how much his later expenses would be nor how much he would get for the product. There would always be the chance that the total value of all the flour he would produce would be less than his total expense in bringing it to market. Moreover, for many years he would have no current income

out of which to meet expenses, which would be so great that no one man would be likely to have enough capital at his command to carry the project through. But even if he did have, it would be exceedingly risky for him to undertake such a long-drawn-out process of production.

2. Risk reduced by specialization. Ordinarily when a business man engages in production he confines himself to one stage of production, as producing wheat, transporting wheat (and other commodities) milling, wholesale distribution, retail trade, construction, or manufacture of machinery. This has two distinct advantages: First, one man is ordinarily more competent at directing one stage of production than at directing many stages of production. This sort of specialization represents merely one form of the division of labor. Second, when industry is thus specialized or cut up into sections, no business man needs to wait long for the returns, in money, to come in on his business. The interval between buying and selling is cut down. The farmer, for instance, sells his wheat within a year from the time he sows it, and may begin to enjoy an income even in less than a year from the time he begins business. The construction specialist who builds the mill gets paid when the mill is built, and the miller begins to sell flour within a few months from the time his first expense in building the mill is incurred. Likewise the railroad begins to enjoy revenue from its operations as soon as it runs trains over its newly built track.

Risk is thus reduced for every business man concerned, since it is easier to foresee possibilities of changes in demand and supply over a short period than over a long period, and in one stage of business than in many stages. For society as a whole risk of having capital and labor wasted on unproductive enterprises is also reduced by reason of the fact that specialists are less likely to make mistakes than jacks-of-all-trades.

But risk is by no means eliminated. All along the line of production capital is sunk in enterprises which depend for their continued success upon the demand months or years later for the finished consumers' goods toward whose ultimate production they contribute. If for some reason a smaller quantity is demanded than anticipated, or if some rival source of supply causes excessive quantities to be thrown on the market, the money return will be smaller than

expected and losses may result to some producers and perhaps to all producers in the whole chain of productive processes. A good example of this sort is represented by the expansion of grain-growing and railroad-building in the West after the Civil War. Hundreds of millions of dollars were invested in building railroads and in developing farms in the expectation that the demand for farm products in the Eastern States and in Europe would be great enough to make all this enterprise pay. But production expanded so much more rapidly than demand that the price for farm products which ultimately equalized demand and supply was too low to cover the expenses incurred. Both the railroads and the farmers suffered great loss, as did also in all probability other business men closely linked in this particular chain of production. The price of wheat and corn was so low per bushel that, divided among the farmers, the railroads, the grain dealers, and others in the chain of production, it was too small to yield all of them an adequate income. The evil in this particular case was exaggerated by the peculiar monetary conditions of the time, discussed in Chapter XXVI.

3. **The risks of the specialist.** Even when business becomes highly specialized, so that the miller, for example, does nothing but manufacture flour, or the automobile manufacturer nothing but make cars, business is still risky. Ordinarily some capital must be sunk in plant and equipment before either total costs or the total value of the product can be calculated with certainty, and operating expenses may mount high before the product is ready for sale. Once the enterprise is under way, the business man is committed to certain expenditures which he cannot cancel merely by ceasing operations. To back out of an unprofitable enterprise may be more costly than to continue operating at a loss. Like H. G. Wells's hero, Mr. Britling, the business man once in the mess must see it through. To abandon the enterprise once it is started may mean to sell plant and equipment and other goods on hand at junk-dealers' prices. The loss may be nearly one hundred per cent.

Note the variety of possible unfavorable developments which may shatter the business man's rosy hopes of profits. His competitors may produce more than he expected, making it difficult for him to sell his total output at a favorable price. If domestic competition is not disastrous, foreign producers may invade the market and de-

press prices. A substitute product may threaten the existence of his business — as the electric refrigerator threatens the ice business, or as rayon products threaten the silk industry. If his product is some specialty subject to the whims and fancies of the public, these whims and fancies may change. Fashions change. Goods become out of style. All these things and others may compel him to sell at a lower price than he anticipated or may prevent his selling at all.

At the same time his costs per unit of product may be greater than he had reason to expect. Labor, materials, and machinery may rise in price. Freight rates may be raised. Shortage of raw materials and labor may develop. Railroad embargoes, car shortages, or labor troubles may obstruct production, increase cost, and cause the producer to lose the most favorable opportunity for sale. On top of all this are other hazards of industry, including storms, floods, fire, war, crop failures.

4. Reducing risk by monopoly and combination. It is natural that business men should try to avoid the risks at the same time that they try to seize the profits of industry. We have already discussed how they sometimes try, by developing a monopoly, to avoid the risk of having competitors undersell them. When a monopoly is acquired, risk is certainly greatly reduced, although it is not eliminated. Unless the monopoly is protected by law, it may not be maintained. If it is protected by law, as in the case of public utility monopolies, there is the risk of having rates regulated so severely that losses rather than profits may result, and the further danger that some substitute good or service will come into use and destroy the value of the monopoly's investment.

Business men also sometimes strive to reduce risk by building up vertical combinations, — carrying production through a number of stages, — as we have noted in an earlier chapter. They thus avoid the risks of a shortage of raw material and the danger of not finding a market for their products in the earlier stages of the chain of production. But this loses the advantages of specialization and involves a long-drawn-out process of production which, as we have already indicated, has risks of its own which business men ordinarily avoid by the process of specialization.

5. Reducing risk by insurance. Some risks can be reduced or avoided by insurance, such as fire, fidelity, and storm insurance.

For a relatively small payment annually insurance companies stand ready to indemnify business men and others for losses suffered from the particular contingency insured against. The principle upon which insurance companies operate is simple. Statistics of fire, for instance, compiled for a long term of years indicate that for property of a given kind fire losses will average perhaps 1 per cent a year. Such property they may safely insure against loss by fire for a premium somewhat greater than 1 per cent, let us say 1.25 per cent. If an insurance company has in force $10,000,000 of such insurance, its income from this source will be $125,000 a year. Its losses, if approximately as expected, will be $100,000. The difference will represent the gain of the insurance company on this series of transactions, out of which it can pay operating expenses and perhaps enjoy a profit. Insurance companies may thus relieve business of risk of certain kinds without any great risk to themselves. If competition is keen among insurance companies and their study of the statistics of their business is thorough, their insurance rates will tend to be just a little more than the rate of loss on the property insured. Their incomes, in other words, will tend to cover their costs, but little more than that. Most business men insure their property against fire, and may take out also insurance against loss by storm, theft, or accidents, and some business concerns insure the lives of their executives, since the untimely death of an important executive may represent a greater loss to the business than the destruction of a building by fire.

These various kinds of insurance reduce the total risks of industry, since they permit individual business men to avoid serious risks without throwing equal risks upon the insurance companies. They do not, however, reduce the total loss by fire, theft, accident, and the like, except indirectly. If the same precautions are taken, the business man who is insured against fire will be no more and no less likely to have fires than the uninsured business man. There is always the danger of dishonest men's insuring their property for more than its actual value and then setting fire to it for profit. That some incendiary fires must be contended with is evident from the statistical fact that losses by fire are somewhat greater during times of business depression than during prosperous years. Thus, fire insurance may actually increase fire losses, which in the long run

the people of the country must bear in the form of higher prices or fewer goods, or both, or in longer hours of labor.

On the other hand, insurance may mean a net saving to society. Insurance companies may educate their patrons in fire and accident prevention by offering lower rates when specified conditions are met. When fire insurance rates vary with the fire hazard, business men strive to obtain lower rates by reducing the hazards and may be instructed by the insurance companies how to reduce the hazards. Possibly the greatest gain from insurance comes from the fact that business men who are insured against loss do not have their efficiency reduced by worry over fire, theft, accidents, and the like, and do not find their business thoroughly disorganized or ruined when the disaster insured against befalls them.

6. Speculation and speculators. One form of business activity is called "speculation," and those who engage in speculation are called "speculators." It is somewhat difficult to draw the line between ordinary business activities and speculation. All business men buy to sell at a profit, which is just what the speculator does. Other business men, like speculators, may profit from a rise in the prices of the things they buy or suffer losses from a decline in the prices. There is, however, this important difference: the business of speculation depends upon price fluctuations — the ups and downs of the market. It is from these alone that the pure speculator gains his income. But the manufacturer, the merchant, and various other classes of business men operate, not because such price movements occur, but in spite of them. Many would prefer to operate under more stable conditions, and consider the ups and downs of the commodity markets an evil to be avoided if possible. The manufacturer is concerned primarily with so combining labor, raw materials, plant, and equipment as to produce a finished product that will sell for more than his costs of production. His gain should result primarily from his skill in manufacture rather than from fluctuations in prices of his raw materials or his product. Likewise the retail merchant's gain should come primarily from the normal difference between wholesale prices and retail prices, and not from fluctuations in one or both of these. On the contrary, the pure speculator's gains must come from price changes. He buys and sells the same commodity in the same form, hoping for a change in price between

the time he buys and the time he sells. Only if the commodities he buys rise in price can he make a profit. If they fall or remain stationary, he loses, since then he cannot make operating expenses.

Since commodities of all kinds do fluctuate in price, there is a speculative element in every kind of business. Some business men welcome this speculative element and make no attempt to avoid it. Indeed, many buy raw materials at times in larger quantities than are required for their regular business operations at the time, in the hope of being able to sell later at a higher price, or in the hope of thus cutting down their costs by laying in a large supply before the rise in price. Some business men, however, avoid speculation as far as they can, and concentrate their business ability on the process of manufacture or merchandising which they consider their real business.

7. Organized commodity exchanges or markets. The great organized commodity exchanges or markets offer at the same time a splendid opportunity for speculators to speculate and for other business men to rid their business of the speculative element by the process called "hedging." This can be illustrated by a brief description of the Chicago grain exchange, or, as it is commonly called, the Chicago Board of Trade, and its operations. Chicago, by reason of its location, is a great railroad center tying together the agricultural West and the manufacturing East, and is naturally, therefore, a great grain market. Hundreds of millions of bushels of grain are sold there each year by Western producers or dealers and distributed from there among millers and others for domestic consumption or for export. The Chicago Board of Trade is an association of grain dealers or brokers organized for the purpose of reducing to order and system the Chicago grain market, which without some sort of organization would be in a chaotic state. The Board of Trade provides the physical equipment and the rules and regulations which make an orderly and efficient market possible.

The physical equipment consists in part of a large trading room where the hundreds of dealers or brokers may meet. This room is equipped with tables for displaying samples of grain; the famous "pits," where those engaged in future trading may be stationed in such a way as to communicate easily with one another by signs while

trading; great numbers of telephones and telegraph instruments bringing in news relating to the demand and supply and prices of grain all over the world; large blackboards on which the latest grain news and the latest market quotations are displayed; and "tickers," some of which reel off price quotations, while others give the latest gossip of various kinds relating to the grain market.

In this brief discussion a full account of trading on the grain exchange cannot be given, but we may note the main features of cash sales and of dealing in futures. Country shippers consign wheat or other grain to Chicago commission merchants who act as the agents of the shippers in selling their grain. The commission merchants bring a sample of the grain from each car, which has been officially inspected, and, displaying the sample at the tables provided for that purpose, sell the car of grain to the highest bidder. Since these commission merchants are specialists who thoroughly understand the grain trade and the needs of the various classes of buyers, they can ordinarily sell the grain to better advantage and at less expense than could the shippers themselves. Although the market thus performs a great service to the grain trade in these cash sales, the more interesting aspect of the market is that of dealing in futures.

8. Dealing in futures. A person who is dealing in futures on the grain market is one who buys or sells grain for future delivery. The regular delivery months for wheat in Chicago, for example, are May, July, September, and December. To illustrate this point: On June 23d, Smith may sell to Brown for delivery in September, 100,000 bushels of wheat of a specified grade at $1.33 a bushel. Smith does not actually have to own wheat to make such a contract, but may sell at the price of $1.33 for September delivery, hoping to buy that much wheat later for September delivery at a lower price and thus make a profit. A man who sells wheat for future delivery when he owns no wheat is said to be "short" of wheat. Although such contracts are for actual delivery at the specified time, any seller may ordinarily avoid making actual delivery of the wheat by "covering" his short sale — that is, by buying an equal amount of wheat for delivery in the same month. The one contract offsets the other.

Members of the grain exchange not only trade among themselves,

but act as brokers buying and selling for others, so that one need not be a member of the grain exchange to deal in futures. Future trading is of two kinds, the trading of speculators who hope to make a profit from price changes, and the trading of other business men who deal in futures to safeguard themselves from the hazards of price changes. We will consider first the trading of speculators.

A speculator who buys wheat in June for delivery in September does so presumably because he believes that in September cash wheat will be worth more per bushel than he has paid, or because he believes that some time before September he can sell his future contract for more than he paid for it. In either case he will thus make a profit if his views are correct. On the other hand, the speculator who sells wheat for September delivery believes that conditions of demand and supply will be such in September or before September that he can buy back as much wheat as he sold for a lower price than he has received. Current price quotations of wheat for September delivery may then be said to represent the consensus of opinion of all speculators in wheat of what the price of wheat will probably be in September, all things considered. They represent, in other words, a sort of composite forecast of the future price of wheat. As conditions of demand and supply change, this forecast will change and the price will vary. Since the demand for wheat is highly inelastic and a comparatively small change in supply will cause a relatively sharp change in price, and since the market for wheat is world-wide and affected by conditions the world over, it is to be expected that prices for future delivery will be subject to continual fluctuations often severe in character.

Professional speculators in wheat, whether members of the grain exchange or not, become particularly expert in forecasting the price of wheat. They keep in touch with conditions of demand and supply the world over, and they are quick to grasp the significance of any news item bearing upon demand and supply and to weigh carefully the conflicting reports that pour in by telegraph and cable or radio from all corners of the earth: Europe is taking 2,000,000 bushels; small surplus for export in Russia; dry weather in India; hot winds in Kansas; green bugs in Oklahoma; rust in Minnesota; strike in Argentina; grain price stabilizing bill discussed in Congress, etc., etc. Each of these reports is interpreted by numerous

speculators as justifying some change in price, and so quotations jump nervously up and down, sometimes giving great leaps and at other times taking great tumbles.

Those speculators who forecast more accurately than others the probable trend of prices make profits from their deals; those lose who forecast less accurately. Now speculators may be classified as of two kinds: those who speculate intelligently, on the basis of accurate knowledge of the facts of demand and supply, and who have the ability to judge shrewdly the probable effect of the changes in demand and supply upon price; and those who speculate without an accurate knowledge of the facts, and who have little ability to forecast price movements. The former may be called "professional speculators" and the latter "amateurs." Naturally the amateurs generally lose and their losses aid the professionals materially in gaining substantial incomes.

The following price quotations from the Chicago market, June 23, 1926, indicate the nature of the price fluctuations of wheat during a trading day, from one day to the next, and from one year to the next:

WHEAT

	OPEN	HIGH	LOW	CLOSE	PREVIOUS CLOSE	LAST YEAR
July	$1.37\frac{1}{8}$	$1.37\frac{1}{2}$	$1.36\frac{3}{4}$	$1.37\frac{1}{8}$	$1.37\frac{5}{8}$	$1.54\frac{7}{8}$
September..	$1.33\frac{1}{4}$	$1.33\frac{5}{8}$	$1.32\frac{7}{8}$	$1.33\frac{3}{8}$	$1.33\frac{5}{8}$	$1.53\frac{3}{8}$
December...	$1.35\frac{1}{4}$	1.36	$1.35\frac{1}{8}$	$1.35\frac{7}{8}$	$1.35\frac{3}{4}$	1.55

The prices quoted include, as indicated by the headings, the opening prices on the morning of June 23d, the highest and the lowest prices quoted that day, and the closing quotations of that day and the day before. For purposes of comparison the closing quotations of the same day last year are given. The price changes in this particular case are very moderate. But it is not uncommon for prices to rise or fall three, five, or even ten cents in one day, and even greater changes have often occurred.

9. The good and evil of speculation. Speculation in wheat and other commodities is often condemned on the ground that specu-

lators artificially manipulate prices, causing the "legitimate" sellers to receive less and the "legitimate" buyers to pay more than would be the case if the speculators could be kept out of the field. Now, as a matter of fact, honest and intelligent speculation has just exactly the opposite effect. This may be illustrated by the case of wheat. Approximately two-thirds of the entire wheat crop of the United States is thrashed and thrown on the market during the four months of July, August, September and October. Thus the "legitimate" sellers, the producers and the country shippers, want to sell about eight months' supply in four months. On the other hand, the millers, who are the greatest "legitimate" buyers of wheat, prefer to buy their supply as it is required for milling. If, now, there were no speculative buying of wheat there would normally be a great oversupply during the months immediately following harvest, and this would tend greatly to depress prices. It would, in fact, depress prices to the point which would tempt millers to buy a whole year's supply in advance of their requirements. This price would tend to be so low that it would pay farmers to feed wheat to live stock, and this would tend to cause some degree of scarcity later in the year and abnormally high prices. Thus there would tend to be a yearly cycle of prices, running from very low to very high, and then down to very low again, with much wasteful consumption of wheat. Speculative buying and selling of wheat tends to prevent such great annual fluctuations, and thus tends to give farmers a better price for their wheat and consumers on the average cheaper flour or bread. In fact, speculation tends to iron out all fluctuations in prices that can be fairly accurately forecast by systematic study of conditions of demand and supply. Speculation cannot, of course, prevent price changes that result from unpredictable changes in demand and supply, such as those resulting from abnormally favorable or unfavorable seasons.

The presence of dishonest and ignorant speculators in the speculative market may, however, prevent the normal results of honest and intelligent speculation from being achieved and may lead to serious evils. Ignorant speculators, acting without an understanding of basic price-determining conditions, tend to rush in and buy whenever they see a sustained upward movement in prices under way, or to sell short when they see a persistent downward tendency

under way. Taking advantage of this fact, professional speculators with great financial resources sometimes buy wheat in large quantities and start an upward movement in prices not justified by fundamental conditions of demand and supply, hoping to tempt the gullible outsiders, the mere gamblers, into the rising market, and then unload their holdings on the victims before the ruse is discovered. This is, however, a dangerous undertaking, since other professional speculators hamper the upward movement by selling in large quantities when the price seems higher than conditions justify. Again, the professional manipulators may suddenly dump great quantities of wheat on the market, hoping to demoralize the market to the extent that they may buy back at a lower price what they have sold.

Such tactics of professional manipulators are aided by the practice of buying or selling wheat on margins. Buying on margin means simply that the buyer advances only a fraction of the buying price and borrows the remainder from or through his broker. His margin may be perhaps only ten cents a bushel. If then the price drops and he can borrow no additional funds, he must sell his holdings even against his better judgment. Buying on margin permits the speculator to deal in much larger quantities than he could handle if he advanced all the money himself, but it means ruin if a sudden sharp dip strikes the market, such as professional manipulators may produce. A dip of ten cents a bushel forces many who have bought on margin to sell, and their selling forces a further decline in prices, which gives the manipulators their opportunity to buy back what they have sold. Similarly a sharp rise engineered by manipulators may compel other speculators who have sold short to cover their short sales and thus bid the market up against their own judgment.

Sometimes large operators on the wheat market attempt to corner the market. By this is meant that they try to buy up all the wheat that is offered at a certain delivery month, and make it impossible for those who have "sold short" to cover their contracts or obtain enough cash wheat to deliver what they have sold. They can, if successful in this maneuver, compel those who are short to buy wheat from the manipulators at exorbitant prices or pay them enormous sums to be released from their contracts. Corners have suc-

ceeded in very few instances, and the manipulators are more likely to lose than to gain, since they must buy much wheat at high prices. But even when corners are not successful, they cause violent price changes which are against sound public policy. Such professional manipulation of the market is obviously an evil.

The remedy for the evils of speculation is not, however, the abolition of speculation by law, any more than the remedy for losses by fire is the abolition of fire by law. Manipulation is made possible primarily by the large army of ignorant speculators who insist upon speculating not only in ignorance, but upon slender margins. If these egotistic optimists or gamblers, who believe that when they buy the market is bound to go up, or that when they sell it is bound to go down, did not enter the speculative market, little would be heard of the evils of speculation.

10. Hedging. One of the desirable features of speculative commodity markets is the opportunity it gives many business men, by hedging, to remove the speculative element in large degree from their business. Hedging is very common among business men dealing in grain and grain products, such as country shippers or millers. Millers are engaged in a highly competitive industry and can expect only a narrow margin of profit in the long run. Fluctuations in the price of wheat may temporarily give them large profits or ruin them, according to whether they are favorable or unfavorable. If a miller prefers a fairly certain moderate margin between the cost of production and the price of his product to the uncertain gains or possible losses resulting from price changes, he hedges. He may, for example, have made a contract to deliver one thousand barrels of flour a week for twenty weeks at a price which will give him a fair profit at the present price of wheat. He does not, however, care to lay in at once twenty weeks' supply of wheat, preferring to buy his wheat from week to week as it is required. But there is the chance that wheat may rise in price and that this rise may involve him in loss. To avoid this possibility he may buy at once enough wheat on the speculative market for future delivery to make his 20,000 barrels of flour, something less than 100,000 bushels. Then, as he buys his cash wheat from week to week for milling, he sells an equal amount of wheat for future delivery, and by the time he has bought all the cash wheat required, he has sold an equal amount of wheat

for future delivery, thus closing out his hedging operations. If, now, wheat during this twenty-week interval rises in price, he makes enough profit on his hedging operations to offset the rising costs of his milling operation, and thus retains the normal milling profit that he expected.

Similarly, grain dealers who buy from farmers and ship wheat to market may hedge during the interval, perhaps two or three weeks, required for shipping and delivering the wheat to commission merchants at the primary market. During this interval the price of wheat might fall by an amount several times greater than the grain dealers' margin of profit.

It may not be clear to the reader why cash prices of the wheat which the miller buys should fluctuate approximately by the same amount as future prices. There tends to be a natural relation between cash prices and prices for future delivery, determined by the carrying charges — the costs of storing and insuring grain from the time purchase is made until the time of delivery, and the interest charges on the money required. If the spread between the two prices is greater than this carrying charge, it pays to buy cash wheat and store it to be delivered on contracts for future delivery. There are exceptions to this rule which for lack of space cannot be considered here.

The advantages of hedging are possible for all business men dealing in or using considerable quantities of commodities for which there are organized speculative markets. These commodities include, in addition to grains, cotton, sugar, coffee, rubber, and wool.

11. Stock market speculation. The New York Stock Exchange and lesser stock exchanges in other cities are organized markets for corporation stocks and bonds and government securities. They offer the investor excellent opportunities to buy and sell investments and the speculator ample scope for the display of his ability or lack of ability. Just as it is difficult to draw the exact boundary line between speculation in commodities and ordinary business buying and selling, so it is difficult to draw the line between investment in stocks and bonds and speculation in these securities. There is, however, this fundamental difference: The investor buys bonds, ordinarily, and sometimes stocks, primarily for the sake of securing an income in the form of interest — the premium on present goods in terms of

future goods. The speculator buys, not primarily for income in the form of interest, although he may receive interest on his investment, but in order to make a profit — something over and above interest. The profit may come from a rise in the price of the security he buys, or from a high current rate of return in the form of dividends or contract interest on the price paid for the securities. To illustrate this point: The pure investor buys government bonds, and is content with, let us say, four per cent interest, with no hope of selling the bonds for more than he paid. The speculator buys a corporation bond or stock on which the income is high, but uncertain, say ten per cent. If he can hold it for a year and sell it for the same price he paid, he has made a profit in the form of the high current yield above a fair rate of interest. If the security rises in price before he sells, he obtains an additional profit. More often than not the speculator has his eye primarily upon the possibility of a rise in price which he may hope to realize within a few hours or days, or for which he may be willing to wait months or years. Although either stocks or bonds may be made the instrument of both investment and speculation, bonds are ordinarily bought by the pure investor and stocks by the speculator. Certain securities combine a fair degree of safety of income and principal with some chance of enhancement in value and these are sometimes designated by the descriptive, although not linguistically pure, term "spec-vestment," and the persons who buy them are called "spec-vestors."

The New York Stock Exchange has a large trading room for the convenience of members of the exchange dealing in securities, and elaborate and efficient equipment for the prompt dissemination of market news. The hundreds of members of the exchange buy and sell stocks and bonds among themselves and act as brokers for the thousands of outside investors and speculators.

For those inclined to speculate, the common stocks of corporations offer ideal instruments because they are peculiarly subject to price changes. The reasons why these stocks fluctuate have already been indicated in our chapters on public utilities and railroads. In brief, the stock market valuation of the stock of any corporation tends to represent the anticipated future income of the stock per share capitalized at the current rate of "interest" that would represent a fair return on the price paid considering the degree of un-

certainty of the income or the risk involved of losing the principal. If the corporation, for example, had earned during the past ten years an average return of $10 per share, had earned in the last year $15 a share, and had good prospects of earning in the next five years an average of $15 a share, its stock would tend to sell on the basis of an anticipated income, fairly certain to approximate $15 a share, and not likely to sink below $10. If the income of $15 were absolutely assured for an indefinite number of years and the current rate of pure interest were five per cent, the stock would sell for $300. Under the circumstances just assumed, it would sell for considerably less than $300, perhaps for $150. If the income in the past had been smaller and the anticipated future income were smaller and less certain, it would sell for less. If in the past no income had been realized and there were a bare chance of $2 a share in the years ahead, it might sell for as little as $2 or $3 a share, or less.

Now the earnings and prospective earnings of the common stocks of corporations, particularly of manufacturing or industrial corporations, tend to fluctuate sharply from year to year, or even from month to month, particularly if the corporations have bonds and preferred stock outstanding on which interest and dividends must be paid before dividends can be paid on the common stock.

Running at capacity and selling its product at a fair price, a manufacturing corporation might, for instance, have net sales of $10,000,000 and operating expenses of $9,000,000. If dividends on preferred stock and interest on bonds and taxes, etc., amounted to $500,000, it would have left available for the common stock $500,000, or $5 a share if 100,000 shares were outstanding. Under the circumstances the stock might then sell for $50 a share. Suppose now that sales fell off so that the corporation realized only $8,000,000 a year, but that operating expenses did not fall in proportion, but fell only to $7,500,000. Then there would be left after operating expenses only $500,000, which would just pay preferred stock dividends, interest on bonds, taxes, etc., leaving nothing for the common stock. The common stock might then with reason drop to $10 or less a share.

The continual fluctuation of stocks provides those who can successfully foresee these changes with a good opportunity to make a profit. This includes men in positions of responsibility with the

corporations who know, long before the public in general can know, probable changes in earnings, and it includes also certain other speculators who make a careful study of general conditions of business and of business conditions in particular industries, and can thus forecast successfully earnings of particular corporations without having "inside information." Unfortunately, the ups and downs of the stock market tempt thousands to buy and sell stocks who are in no position to pass sound judgments on the probable future prices of the securities in which they deal.

12. Hazards of unintelligent stock market speculation. During the various phases of the business cycle the earnings of industrial corporations tend to go up and down in a body, some more and others less, in accordance with their varying degrees of prosperity or lack of prosperity. Stock market quotations of the various corporations then also go up or down more or less as a whole, and we have what are called great "bull" or "bear" markets. Since the professional speculators and the "insiders" ordinarily foresee the increase in corporation earnings before they are realized, the stock market boom, or bull market, tends to precede the business boom, and the stock market collapse, or bear market, tends to precede the period of business collapse and depression. And it is for this reason that many amateur speculators lose money on the stock market. They naturally tend to buy when business is prosperous and large earnings are being reported by the corporations, and they sell when business is bad and corporation reports show small earnings or even deficits. This tendency of the average amateur speculator permits the better informed to sell their stocks at high prices just before business turns bad and to buy stocks at bargain prices just before the next period of prosperity becomes evident.

On the stock market even more than on the grain market manipulation of prices by professional speculators is possible. It is comparatively easy for a small group of speculators, or a "pool," to start an upward movement in the price of the stock of a certain corporation not justified by fundamental conditions. They buy heavily of its stock on the market, and at the same time skillfully disseminate vague rumors of various sorts indicating that the stock is greatly undervalued at its present price and that shrewd financiers who know its secrets are buying control of the corporation in the

open market. It is hinted that the stock is to go much higher and that the real facts about earnings are being carefully guarded until the big men manage to buy up all the stock in the market. The great activity of the stock on the market and the steadily rising price, together with the persistent rumors, inflame the cupidity of gullible victims and they begin to buy eagerly. As the "public following" of the "pool" grows, the stock naturally rises faster in price until finally it rises to fantastic heights. During this period the manipulators carefully feed out their holdings to the outsiders, and thus manage to dispose of their stock at a good profit. Afterwards the stock falls to its natural level—the price that is justified by its actual and prospective earnings. Such operations succeed the more easily because it sometimes happens that a similar rise in the price of a stock takes place that is fully justified by subsequent events.

On the stock market, as on the grain exchange, there are short sales and dealings on margin. A speculator may sell stock that he does not own, buying it later. Since he is actually required to deliver stock that he sells short, he or his broker must borrow, during the interval between his short sale and his subsequent purchase, an equal number of shares of the stock from an actual owner. Whether a man sells short and buys afterward, or buys first and sells later, he makes a profit when he sells for a higher price than he pays and loses money when he sells for a lower price than he pays. Selling short, however, has dangers greater than buying to sell later. A stock cannot fall in price by more than the speculator pays for it. His possible loss is limited. But a stock may rise in price to fantastic heights. His possible loss on a short sale has no definable limit. If he buys 100 shares of stock at $25 a share, he can lose no more than $2500, plus brokers' commissions and interest. But if he sells short at $25, the stock may rise to $100, $200, or even $1000 a share, and his loss may run into tens of thousands of dollars before he finally covers his short sale. It has occasionally happened that the stock of a certain corporation has been cornered. That is to say, speculators have sold short more shares than they are able to deliver, and those who have engineered the corner have bought them. The "shorts" must then settle at ruinous terms.

When a speculator buys stock on a margin, he advances only part

of the purchase price, perhaps twenty-five per cent, to his broker, and the broker supplies the balance or borrows it from his bank, keeping the stock as security. Buying on margin is particularly hazardous, since, if the stock threatens to drop in price so far that it is worth less than the amount of the broker's loan, the broker will call for more margin, and if this is not forthcoming he will sell the stock for what it will bring, thus "wiping out" the speculator. When a speculator sells short, he must also put up a margin with the broker to protect the latter in case the stock advances in price. This margin must be increased if the stock rises before the short sale is covered. It is obvious that the uninformed speculator buying or selling on narrow margins is almost certain in the long run to lose all he hazards in this dangerous game of chance.

13. **Business forecasting.** Practically every business enterprise involves the element of forecasting future business conditions. When business men buy buildings, machinery, raw material, and so on, they are at least tacitly forecasting that the product of their enterprise will sell for more than the costs, and they are probably forecasting that some of these costs — those that could be deferred for a time — are lower now than they will be later. Unsuccessful forecasting may mean serious loss. The best business man is likely to be the one whose foresight is best — who forecasts most accurately. Likewise successful speculators are those who forecast better than others future prices of commodities and securities.

During recent years the business or profession of business forecasting has become of importance. The business man and the speculator have found in many cases that it pays them to pay others to do some of their forecasting. The professional business forecasters are concerned primarily with forecasting the successive stages of the business cycle, and to the extent that they can do this successfully they perform a useful service to the business men and speculators who follow their advice. The manufacturer who is warned in advance of the rank and file that business depression is about to strike his industry is less likely than others to be caught in an overextended condition at the critical time, and the speculator on the stock market who discovers most promptly that a bull or bear market impends is in the best position to seize great profits.

Among the notable forecasting services that have been available

for many years are the Babson and the Brookmire Services, which apparently have a large following. More recent in origin is the Harvard Economic Service, which is notable because of the reputation of the economists and statisticians who have coöperated to produce it. Space forbids a detailed description of these services and the methods they employ in forecasting. To put it briefly, by means of painstaking and scientific analyses of a variety of statistical data of recent years and current economic and financial conditions, they undertake to point out the most probable trend of business and financial conditions in the immediate future. The forecasts have not always been correct, but they seem on the whole to be accurate enough to be of material assistance to those who use them with judgment.

Many large corporations, in addition to subscribing to the Harvard, Brookmire, Babson, or other forecasting services, have developed statistical departments of their own which undertake to forecast the particular events and developments that are of special interest to their own industry or business. One of the interesting possible results of all these forecasting activities is the practical elimination of the business cycle. If the forecaster should be in a large measure successful, periods of abnormal prosperity or depression would no longer appear, since these abnormal conditions are the result of business maladjustments arising from unsuccessful forecasting. It seems more than probable that a policy of price stabilization pursued by the Federal Reserve System together with scientific business forecasting might cause the practical disappearance of the business cycle, and thus greatly reduce risk in business.

EXERCISES

1. Does fire insurance tend to reduce or to increase the total loss by fire? Discuss.
2. Business men in general as well as speculators buy hoping to sell at a profit. What, then, is the difference between ordinary business operations and speculation?
3. A speculator bought 100,000 bushels of wheat for December delivery at $1.40 a bushel, buying on a margin of $.20 a bushel. The price of wheat advanced. and he sold out at $1.80 a bushel. Leaving out of consideration brokers' commissions and other incidental expenses, how much of his own money did he put into the deal, and what were his profits? What would have been the result if the price of wheat had dropped $.20 a bushel?

4. Why does the price of wheat continually fluctuate, often quite violently?
5. Explain by means of a concrete example how a miller may reduce the risks of his business by hedging.
6. Why do the prices of common stocks fluctuate more violently than the prices of bonds?
7. Explain the dangers of dealing on margins on the stock market. What are the peculiar hazards of selling stocks short?

REFERENCES

I

Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 32.
Marshall, L. C. *Readings in Industrial Society*, chapter 8.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, sections 226–31.
Taussig, F. W. *Principles of Economics* (1921 edition), chapter 11.

II

Brace, H. H. *Value of Organized Speculation.*
Boyle, J. E. *Speculation and the Chicago Board of Trade.*
Gephart, W. F. *Principles of Insurance.*
Jordan, D. F. *Business Forecasting.*
Knight, F. H. *Risk, Uncertainty, and Profit.*

CHAPTER XXXII

CLEARINGS, COLLECTIONS AND EXCHANGE

1. Four classes of payments for goods and services. All payments for goods and services conceivably could be made in money, but under our banking system credit instruments of various sorts have been substituted for money for most of such payments. Aside from small-change transactions over the retail counter, and the like, money payments have become the exception rather than the rule. This results in convenience and economy to the people as a whole, and gives some classes of business men, such as bankers and note brokers, an opportunity to gain an income by engaging in the business of providing these instruments of convenience and economy. The use of checks in making payments is familiar to practically everybody in the United States, and the nature of checks and bank deposits against which they are drawn has been sufficiently discussed in preceding chapters. But some important problems growing out of the use of checks and other credit instruments, and the nature of these other credit instruments, have not yet been discussed in this volume. To a consideration of these we must now turn, since they deserve the careful attention of every student of economics.

Payments made for goods and services may from one point of view be grouped into four classes of cases, namely, those in which:

(1) Both buyer and seller live in the same city and are patrons of the same commercial bank.
(2) Both buyer and seller live in the same city, but are patrons of different banks.
(3) The buyer and seller live in different cities of the same country.
(4) The buyer lives in one country and the seller in another.

When both buyer and seller are patrons of the same bank, payment by check is simple and gives rise to no complicated problem. For the sake of brevity let us refer to the buyer as A and to the seller as B. In this case A draws a check against his account in the bank, in favor of B, and B presents the check at the same bank. Usually he will not ask for cash, but will merely request the bank to

credit the check to his account. The net result is that A's deposit is reduced and B's deposit is increased by the amount of the check. The whole transaction may thus be closed by a simple bookkeeping operation in the bank itself.

2. Payment by check when buyer and seller are patrons of different banks in the same city. When buyer and seller are patrons of different banks in the same city, the matter is less simple. In such cases the check drawn by A on his bank, which we will call Bank X, will usually be presented by B, the seller, to his bank, which we will call Bank Y. If Bank Y is satisfied that the check is "good," it will either give B cash for it or credit it to his account, whichever he prefers, usually the latter. This transaction, however, will not be completed until Bank Y, which has cashed or given credit for a check drawn on Bank X, has collected the amount of that check from Bank X.

B, the seller, could, of course, take the check to Bank X, against which it is drawn, ask that bank to cash it, and carry the cash with him to his own bank, Y. It is more convenient, however, for B to take all the checks he receives in the course of a day's business to his own bank for credit, and let the bank attend to the matter of collecting. How much more convenient this is for B will be apparent when we consider that B, if he lives in a fair-sized city, may sell goods to patrons of a dozen or more banks daily, and receive payments in the form of checks on that many banks. If his own bank would not take these checks and credit them to his account, not only would he have to visit the whole dozen banks, but he would have to carry considerable sums of money from the various other banks to his own bank. This would involve danger as well as trouble. The various banks in a city are willing to undertake this work of collection for their respective patrons because they can do it with comparatively little trouble and expense to themselves, and because it brings them much business which they otherwise would not enjoy. In short, it pays them well to do it. To simplify the process of collecting checks the banks organize a clearing-house association.

3. Clearing-house associations and clearing-houses. The main purpose of the clearing-house association is to provide a convenient method of "clearing" and collecting checks, although in some cities

the association is used by the member banks for other purposes as well. Checks may be said to have been cleared and collected when each bank in the city has presented for payment to all of the other banks all the checks it has received drawn against them, and has in turn received from each of the others and paid all the checks they have received drawn against it. One method of performing this operation would be for each bank to send a messenger to all other banks to present for payment the checks it has received during the day drawn against them. But this would be a clumsy method. If there were a dozen banks in the city, each bank would have to send a messenger to each of the other eleven banks, and the messenger would in many cases be obliged to carry back with him large sums of money, a troublesome and dangerous undertaking. A better method is for the clearing-house association to designate a common place of meeting for their messengers — the clearing-house. In small cities, where there are only a few banks, the clearing-house may consist merely of a room in one of the banks set aside for this purpose at the hour of clearing. In large cities a special building is provided, which is then called the clearing-house, as the New York Clearing-House. Whether the clearing-house is one room in a bank or an imposing edifice, as in New York, the process of clearing and collecting is fundamentally the same.

4. Three methods of clearing and collecting. During the course of the day each bank sorts out in bundles the checks it has received drawn on the other banks — putting all the checks from each bank in a bundle by themselves. It also adds up these checks to find the total sum due from each bank. At the hour set for clearing, each bank sends its messenger with these bundles to the clearing-house. There he presents the checks to the messengers of banks against which they are drawn, and receives from these messengers similar bundles of checks drawn against his bank, together with a statement from each of the amount due.

This does not, however, complete the process of clearing, but merely puts into the possession of each bank all the checks drawn against it, paid by other banks, and presented to it by these banks for collection. There still remains the business of each bank's paying to or receiving from each other bank the amount due. There are three methods that might be used in making these payments:

(1) Each bank might pay each of the other banks the total amount due. When this had been done, each bank would also, of course, have received the amount due from each other bank.
(2) Each bank might pay to or collect from each of the others the balance due. For example, if Bank X owed Bank Y $15,000, and Bank Y owed Bank X $10,000, then their two claims would be settled by the single payment of $5000 by X to Y.
(3) Each bank might pay to the clearing-house or receive from the clearing-house the difference between the sum total it owed the other banks and the sum total they owed it.

Of these three methods the third is the most simple, because, in all cases in which more than three banks are concerned, it involves the smallest number of transactions. If the student is inclined to doubt this, a simple mathematical proof is available. If the number of banks in the clearing-house association is represented by the letter x, then the number of payments required in the first case will be $x\,(x-1)$; the number of payments required in the second case will be $\frac{x(x-1)}{2}$, while in the third case the number of payments made will be x. With four banks in the clearing-house, the number of payments in the first case would be 12, in the second case, 6, and in the third case, only 4.

5. The most simple and efficient method illustrated by example. The process of settling balances through the clearing-house may be illustrated by a simple example, assuming just four banks in the association. Suppose that the claims of each of the four banks against each of the others had been tabulated as follows, the four banks being known respectively as X, Y, Z, and W:

In Table XXIX the claims of each bank against each other bank are set down in the columns X, Y, Z, and W. If we read horizontally across the table, we find the sums due to each bank from the others. If we read vertically, we find the sums due from each bank to the others. Whether we read horizontally or vertically, we find, of course, the identical 12 items. For example, the sum 20, due to X from Y, is the same 20 that is due from Y to X. As already indicated, the banks could pay to or collect from one another these 12 items, amounting to $210,000. They could cut the number of payments required in half and reduce considerably the total amount of payments required, if each bank paid to each of the others, or

TABLE XXIX. CLAIMS OF CLEARING HOUSE BANKS AGAINST ONE ANOTHER

(In thousands of dollars)

		Sums due from				
		X	Y	Z	W	TOTAL
Sums due to	X		20	15	10	45
	Y	25		20	8	53
	Z	20	16		21	57
	W	22	18	15		55
Total		67	54	50	39	210

TABLE XXX. CLAIMS OF CLEARING HOUSE AGAINST THE CLEARING HOUSE BANKS

(In thousands of dollars)

BANK	DUE TO CLEARING-HOUSE	DUE FROM CLEARING-HOUSE	BALANCE
X	67	45	+22
Y	54	53	+ 1
Z	50	57	− 7
W	39	55	−16
Total	210	210	0

collected from each of the others, the balance due. But the most simple method is to find the total due to each bank from all of the others, as shown in the right-hand column marked "Total," in Table XXIX, and then to find the total due from each bank to all the rest as shown in the bottom column marked "Total," and then to find the difference between these two sets of totals as shown in Table XXX. In the latter table the sums due to the other banks from each bank are labeled as due to the clearing-house, and the total

sum due to each bank from all the rest is labeled as due from the clearing-house. Subtracting the second from the first, we find the balance due to the clearing-house from each of the banks. A minus sign before the answer indicates that the sum is due to the bank from the clearing-house.

By means of this adding and subtracting of claims of the various banks, the whole process of clearing is reduced to four payments — the sums due from the clearing-house to the banks, or due from the banks to the clearing-house. The sums due to the clearing-house from X and Y amount to $23,000, just the same as the sums due from the clearing-house to Z and W. Therefore the clearing-house needs no funds of its own, but simply pays to part of the banks the sum it receives from the others. Students sometimes conclude that this exact balance of sums due to and from the clearing-house is a mere coincidence found in some particular case, and not likely to happen again. But it should be noted that there can be no other outcome unless a mistake has been made in adding or subtracting. The total in the right-hand column of Table XXX must be zero, because it represents the difference between the total sum due to the clearing-house and the total sum due from the clearing-house, as shown in the second and third columns of that table, which are equal, $210,000. These two sums must be equal because each represents the total of the same 12 items shown in Table XXIX. If there is no exact balancing as here indicated, then the clerks at the clearing-house know that some one has made a mistake, and they calculate the sums again.

6. Use of clearing-house certificates and of federal reserve banks to simplify clearing. In order to avoid the payments in cash of even the small balances at the clearing-house, the clearing-house certificate was devised. In most large cities of the country members of the clearing-house association agreed to deposit either in the clearing-house or some specified bank a sum of money for which it received clearing-house certificates. These clearing-house certificates were receipts for the money so deposited, and could be used as money in settling clearing-house balances, but for no other purposes. Banks owing a balance to the clearing-house would pay, and banks having balances due from the clearing-house would be paid with, these certificates. This saved the handling of actual money and elimi-

nated the danger of robbery, since the certificates could not be cashed except by the banks.

Under the Federal Reserve System a still further simplification of clearing is possible, as illustrated by the practice of the Boston Clearing-House. There, the banks having balances due to the clearing-house, being members of the Federal Reserve Bank of Boston, simply draw checks for the amount due in favor of the manager of the clearing-house, who deposits these checks to his account in the Federal Reserve Bank. Against this account he then draws his checks in favor of the banks having balances due from the clearing-house. When he has paid all these balances, he has, of course, used up all his deposit with the reserve bank, and so the whole business is settled by means of the deposits of the various banks in their federal reserve bank, deposits which they would keep there in any event — their legal reserve. Of course, if any bank has unfavorable balances repeatedly, it will deplete its deposits with the reserve bank and will be under obligation to build them up again.

7. Payments when the buyer lives in one city and the seller in another. When the buyer lives in one city or one part of the country, and the seller in another, payments by check and the business of clearing and collecting become more complicated. If a Chicago shoe retailer buys $1000 worth of shoes from a New York shoe manufacturer, he may pay for them with his check on his own bank in Chicago, and this method of payment is quite commonly used. The New York manufacturer, having received this check in his mail, presents it to his own bank in New York for payment, either receiving cash for it or being credited with a deposit for the amount. So far as the buyer and seller are concerned, this concludes the transaction, and for them it seems just as simple as if they lived in the same city. But not so for the banks. The New York bank now holds a claim for $1000 against the Chicago bank, and our present task is to show how the sum may be collected.

A simple but expensive method would be for the New York bank to mail the check to the Chicago bank on which it was drawn and request that the $1000 be forwarded in cash. This would involve, if paper money were sent, charges for registration or insurance, and the loss of the use of the money during the time it was in transit. If gold or silver were sent, there would be in addition express and pack-

ing charges, and if the sum were large, there might be special guards employed to protect the shipment from train robbers. For these reasons cash is sent to settle such claims only as a last resort, and credit instruments of some sort are used whenever possible.

The use of credit instruments for such purposes is made possible by the fact that trade is generally a two-sided affair. People in New York buy from people in Chicago as well as sell to them. If at about the same time that the Chicago shoe retailer sent a $1000 check to the New York manufacturer, some other New York business man had sent a $1000 check to some other Chicago business man, and if it happened that both the New York men patronized the same bank, and that the two Chicago men also patronized the same bank, then each of these banks would have a claim of $1000 against the other. These two claims would cancel each other, and neither bank would need to send any money to the other. In actual practice no such coincidence is likely to occur, but the cancellation of such claims by the various banks concerned is still largely possible through the use of bank drafts, or bills of exchange, or some similar device.

8. Bank drafts and correspondent banks. A bank draft is nothing more than a check drawn by one bank on another in which it has a deposit. The difference between an ordinary personal check and a bank draft is this: the personal check is drawn by an individual against his deposit in a bank, and the bank draft is drawn by a bank against its deposit in another bank. It is customary for banks in one city to establish business relations with banks in other cities. Banks with such business relations are known as "correspondents" of one another. Generally the banks in the smaller cities keep a deposit with their correspondent banks in the large cities, particularly in the financial centers, and banks in large cities keep deposits with banks in other large cities, or financial centers. Banks that have such deposits in other banks can then draw checks against them — such checks, as already noted, being called "bank drafts."

Let us now consider how the Chicago bank — whose patron has drawn a check against it for $1000 and has sent it to the New York shoe manufacturer, who has in turn deposited it with his bank, which has then returned it to the Chicago bank for collection — may pay to the New York bank its $1000. Very simple. The

Chicago bank, having a deposit with its New York correspondent, draws a draft against that correspondent bank and sends it to the other New York bank and thus meets its obligation. Incidentally, we may remark here that this draft, being drawn against a New York bank, is called a draft on New York or New York exchange. The New York shoe manufacturer's bank receiving this draft, may present it for payment to the other New York bank against which it is drawn. This completes the transaction for the shoe manufacturer's bank. But it should be noted that the Chicago bank has by this operation reduced its deposit with its New York correspondent by $1000, and that if it keeps on drawing drafts against that account, and does nothing to build up the account in the meantime, it will inevitably use it all up, just as an individual may draw out all of his account from his bank. Now, if we are to show how the use of bank drafts saves the shipment of gold or other money, we must show how the Chicago bank gets its deposit in the New York bank and how it maintains it without actually sending money. It is not difficult to show how this may be done.

The Chicago bank may in the course of its business receive checks drawn against some New York banks and send these to its New York correspondent for collection. The New York correspondent credits these checks to the Chicago bank's account with it and presents them for collection through the New York Clearing-House. If the Chicago bank in question receives enough of these checks on New York to equal the amount of drafts it draws against its correspondent in New York, it thus maintains its deposit without sending the actual money. Furthermore, it may have established its account there originally with such checks instead of by sending cash. For example, one of the Chicago bank's patrons may have sold $10,000 worth of wheat to a New York wheat exporter, who paid for it with his personal check on his bank in New York. The Chicago wheat seller may have presented this check to his local bank for payment, and this bank may then have sent the check to its New York correspondent for collection and left the $10,000 on deposit with that bank.

9. Buyers may make out-of-town payments by bank drafts. Up to this point we have tacitly assumed that business men in making payments in other cities pay by check, as they ordinarily do in

making payments in their own city. Many out-of-town payments are in fact made in this way by personal check, and the recently developed system of clearing and collection of the federal reserve banks has made this practice more common than before. But many such payments have in the past been made and are still made by means of bank drafts and commercial drafts. A bank draft is more acceptable to a seller than the buyer's personal check, particularly when the buyer is personally unknown to the seller, as is likely to be the case when, for instance, the buyer is a small-town business man in the Middle West and the seller is an Eastern manufacturer or wholesaler. Because sellers prefer drafts to personal checks, or in some cases because they will not accept personal checks in payment for goods, a buyer, instead of paying by check, may buy from his local bank a bank draft and send this draft to the seller. For example, A, in Chicago, buys from B, in New York, $1000 worth of shoes. Instead of sending B his personal check for $1000, he goes to his own bank and writes out a check payable to the bank itself, and gets in exchange for this a $1000 draft on its New York correspondent, which he then sends to B in New York. In this case he would be said to have remitted New York exchange or a draft on New York. Incidentally, we may note that by this transaction A would have reduced his deposit with his bank by $1000, and his bank would have reduced its deposit with its New York correspondent by an equal amount.

10. Service charge for bank drafts; remitting at par. The local bank may charge the buyer a small fee for his draft, something like ten cents a $100. In other words, it may charge him $1001 for a $1000 draft. It may occur to the student that in this case the business man would do better to send his check and save the dollar, unless the seller refused to accept a check. But banks which make a charge of this kind for drafts are likely to refuse to pay "par" on checks drawn against them and sent in for collection from distant cities. That is to say, if such a bank received for collection from a New York bank its own patron's check for $1000, it might remit to the New York bank only $999. It would justify this practice on the ground that it is worth $1 to remit the $999 to New York. Now, if the New York bank could not collect the check at full face value, it would not credit its own depositor with more than it could collect —

say, $999. If this were so, then the New York seller would in reality pay for the service of having the buyers' payment sent to him. That many banks have made a practice of not "remitting at par" has in fact been one of the reasons why sellers have not been inclined to accept checks from distant customers in payment for their goods. At present, largely as a result of pressure brought to bear by the officials of the Federal Reserve System, most banks "remit at par" — that is, they pay checks drawn on them in full, even when sent in for collection from distant cities. When banks do thus "remit at par," personal checks become more popular with sellers, and banks find more difficulty in making a service charge when they sell bank drafts.

11. The use of commercial drafts. In many cases the seller takes the initiative in collecting payment for his goods instead of waiting for the buyer to send him a check or a bank draft. In such cases a commercial draft may be used. A commercial draft is an order by the seller on the buyer to pay the seller or a third party a sum of money due for goods or services. In substance, although not exactly in form, a commercial draft reads as follows:

To the Chicago Retail Shoe Shop:
Pay to ourselves $1000.
New York Shoe Manufacturing Company

It may be observed that a commercial draft differs from a bank draft in being an order by one business firm on another, not an order by one bank on another. It differs from a check in being an order by an individual or firm on another individual or firm, and not an order on a bank by one of its depositors.

The manufacturer, having shipped the shoes, might send this draft to the buyer and await his money. But this would have two disadvantages. First, he would not get his money at once, since it would take several days for the draft to be carried by mail to Chicago and the remittance made to New York. Second, he might not get paid at all. Once the retailer had the shoes, he might refuse to pay unless the seller resorted to a lawsuit. A better method for the seller is to attach to the draft the bill of lading which he receives from the railroad company when he ships the shoes — and without which the buyer will be unable to take the shoes from the station

when they arrive in Chicago — and to sell the draft with the bill of lading attached to his local bank. In that way he will get paid at once. However, since the bank will lose the use of the money it pays for the draft until it is able to collect from the Chicago buyer, it will not pay a full $1000 for the $1000 draft, but something less than that — it will discount the draft at the current rate of interest for the time required for collection. In addition to this discount it may make a charge for the service of collection. It will be understood that the bank will not buy a draft if there is any reason to doubt that the draft will be "honored," or paid when presented to the buyer.

12. Deferred payments. Up to this point we have considered only credit instruments payable on demand or at sight — checks, bank sight drafts, and commercial sight drafts. But both bank drafts and commercial drafts may be made payable, not at sight, but at thirty, sixty, or more days later — that is thirty, sixty, or more days after they are presented to the person or bank against which they are drawn. Such drafts may be used when the seller agrees to allow the buyer a month or more of time in which to pay. There are various other methods of arranging for such extension of credit to the buyer, the more important of which we may here consider briefly.

One of these other methods is the open-book-account method. The seller simply "charges" the amount of the buyer's bill to the customer's account, just as a retail grocer "charges" groceries to his customers. This open-account method has the disadvantage of not giving the seller any written evidence of the buyer's obligation, and it may encourage the buyer to delay payment unduly and may make collection difficult or impossible. When the buyer finally does pay, he may use a personal check or bank draft as already explained.

13. Promissory notes. A second method of providing for payment when the buyer cannot pay at once is for the buyer to send to the seller his promissory note for the amount due — the note being made payable, perhaps, thirty, sixty, or ninety days from the date of purchase. Such a promissory note would read in substance as follows:

January 1, 1925

Sixty days after date we promise to pay to the New York Shoe Manufacturing Company one thousand dollars.

Chicago Retail Shoe Shop.

Such a note puts the buyer under legal obligation to pay and is therefore more acceptable to the seller than the charge account on his books. Furthermore, if the shoe manufacturing company to whom the note is made payable needs the money before the note is due, it may endorse the note and have it discounted at its local bank. The shoe manufacturer's bank would be glad to discount, or buy, the note, because it would represent a good type of bank paper — being two-name paper. That is to say, it bears not only the promise to pay of the original signer, but also that of the endorser. The shoe manufacturer, having obtained his money by discounting the note at the bank, would now be through with this transaction, unless the shoe retailer failed to pay the note when it became due, in which case the manufacturer himself would have to pay the bank the amount of the note. The bank that discounted or bought the note might hold it until a few days before it became due, and then send it to its correspondent bank in Chicago for collection. The Chicago bank would collect the amount from the retailer and credit it to the New York bank's account with it. The net result of all this would be that the retailer would have got goods without paying for them until he had had time to sell them and get the money he required; the manufacturer would have been able to extend credit to his customer and yet get cash for his shoes; and the New York bank that discounted the note would have earned the discount on the note for the time it ran. Finally, let it be noted that the New York bank would wind up with its New York funds depleted by the amount paid for the note and with its Chicago funds increased by the amount of the note.

14. Borrowing from the buyers' bank. A third method of paying, somewhat similar to that just described, would be for the buyer to sign a promissory note payable to his own bank, have his bank discount it, and with the cash received, or deposit credit thus obtained, pay for the shoes. This form of borrowing from the local bank has been discussed in some detail in our chapter on Bank Deposits and Bank Notes and needs no further description here. It should be pointed out, however, in connection with the problem of exchange, that the buyer, having borrowed his money from the local bank, still has the payment to make in a distant city. He may do this by personal check against his newly acquired deposit credit

or by buying a New York draft. Whether he did one or the other, the local bank would in effect have given him cash or the equivalent of cash in New York, at the time he wanted it, and have got in exchange his promise to pay in cash in Chicago some time later. The net result of this transaction for the Chicago bank would be that it depleted its New York funds by the amount of the merchant's draft or checks forwarded to New York, and increased its funds in Chicago by the amount of the note when it matured and was paid. Also it would have earned the discount on the note.

15. Trade acceptance and promissory note compared. A fourth method of making payments when credit is to be extended to the buyer is represented by the use of the commercial time draft. A commercial time draft reads in substance as follows:

To the Chicago Retail Shoe Shop:
Sixty days after sight pay to ourselves one thousand dollars.
New York Shoe Manufacturing Company.

This differs from the commercial sight draft already discussed in this chapter only in the fact that it is made payable sixty days after it is presented to the buyer. This time draft the seller then sends to the buyer for his "acceptance." Accepting consists in writing across the face of the draft the word "Accepted" and signing the buyer's name. The draft, having been thus accepted, is called a "trade acceptance." It bears the buyer's formal promise to pay just as if he had signed a promissory note for the amount due. After being accepted it is returned to the seller, who may hold it until it matures and then ask his local bank to collect it through its correspondent bank in the buyer's city. If the seller does not care to wait for his money until the acceptance matures, he may have it discounted at his bank at the current rate of interest. Some writers maintain that the trade acceptance is a better type of paper for banks to buy than promissory notes because the former bears on its face evidence that the acceptor has actually bought goods for the amount of the acceptance, and will therefore presumably be able to pay the sum when it is due out of the proceeds of the sale of the goods. On the other hand, they assert, the promissory note, although it may represent payment for goods bought, may represent merely an "accommodation" loan by one man to another the

proceeds of which may be spent by the maker of the note in riotous living, so that he will be unable to pay the note when it matures. This is, however, a doubtful point. A promissory note signed and endorsed by two honest and capable business men will be better than a trade acceptance drawn and accepted by two dishonest men. More depends upon the nature of the men making the promise than upon the words in which the promise is phrased. It may be noted, too, in this connection that buyers and their affairs are better known to their own local banks than to sellers and banks in distant cities. Therefore, if buyers are financed by their local banks unwise extension of credit is less likely to take place than when they are financed by distant sellers or banks. This is a strong argument in favor of financing by discounting the buyer's promissory note at the local bank rather than by the use of the trade acceptance.

From the point of view of the banks concerned, the trade acceptance leads to results similar to those that follow the discounting of promissory notes. The bank that discounts a trade acceptance drawn on a distant buyer pays cash here and now for a sum due in a distant city at a future date. It should be noted, however, that promissory notes discounted by buyers at their local banks give these banks an opportunity to earn the discount, whereas trade acceptances are generally discounted at the sellers' banks and therefore give these banks the opportunity to earn the discount. It follows from this that banks in retail centers may favor the use of promissory notes by retailers, whereas banks in manufacturing and wholesale centers — that is, generally speaking, banks in the larger cities — may favor the use of trade acceptances.

16. Methods of making payments in distant cities summarized. The means of making payments when the buyer lives in one city and the seller in another discussed up to this point are personal checks, bank sight drafts, commercial sight drafts, commercial time drafts, which, when accepted, become trade acceptances, and promissory notes. Personal checks or bank sight drafts are used when the buyer takes the initiative in making immediate payment. Commercial sight drafts are used when sellers take the initiative in demanding immediate payment. Promissory notes are used when the buyers take the initiative in making future payments to the sellers, or when they borrow money from their local banks in order to pay

the sellers at once. Commercial time drafts, or trade acceptances, are used when sellers take the initiative in demanding payment at some definite future time and also a written acknowledgment of an obligation on the part of the buyer.

Various other instruments may be used in making payments in distant cities, such as post-office money orders, express money orders, and bank acceptances. To discuss all these in detail would unduly prolong this discussion, and would not add materially to the student's understanding of the nature of the problems presented by clearings, collection, and exchange, and the solutions that business men have found for these problems. The student should bear in mind that the foregoing instruments of credit used in effecting payments in distant cities are used in part merely as a means of extending credit to the buyer when he is not ready to pay cash, and in part as a means of avoiding the actual shipment of money, either at the time the goods are purchased or later. We are here interested primarily in the use of these instruments of credit as a means of avoiding the actual shipment of money from one city to another, rather than in the matter of postponed payment. Let us proceed, then, to consider the conditions under which it becomes necessary to ship real money, despite the use of credit instruments.

17. Conditions under which actual shipments of money must be made. Actual shipment of money is likely to become necessary when the total value of the goods and services that the people of one section of the country buy from the people of other sections of the country exceeds the total value of the goods and services which they sell to them. Why this is so we can explain most readily if we make two assumptions which will simplify our problem. First, let us assume that the people of Chicago deal only with the people of New York, and second, let us assume that all Chicago people buying goods in New York pay for them with bank drafts on New York, and that all Chicago people who sell goods in New York are paid with bank drafts on New York. Every time a Chicago business man had a payment to make, then, he would buy a draft on New York from his bank, and every time he sold goods in New York he would receive a draft on New York which he would presumably deposit for credit with his bank. Every time a Chicago bank sold a draft on New York it would by that much reduce its balance with its New

York correspondent bank. Every time it cashed a New York draft for a customer it would be in a position to build up its account by the amount of that draft if it sent the draft to its correspondent bank for collection. So long as any particular bank sold no more drafts on New York than it bought or cashed for its customers, it could maintain its account with its New York correspondent. Even if one bank sold more drafts on New York than it bought or cashed, it might still maintain its funds in New York without shipping money if it could go to some other Chicago bank and buy a draft from it. If, however, the people in Chicago should buy far more from New York than they sold to New York, all the banks would soon find the demand for New York drafts greater than the supply, and would therefore soon be in danger of totally exhausting their New York balances, and they would have no satisfactory way of building them up except by shipping money. Incidentally, we may note that, as the Chicago banks depleted their New York funds by selling more drafts than they bought, they would in equal measure build up their resources at home.

The two assumptions made above in no way invalidate the conclusion reached — that excess of purchases over sales is likely to result in shipments of money. If Chicago people buy from and sell to others than New Yorkers, these payments together with the payments due to and from New Yorkers form grand totals which must balance if money is not to be shipped. Chicago may buy more from New York than it sells to New York and pay for the balance with New York drafts received from its sales to Missourians or Kansans, but if it buys more in the aggregate from all sections of the country than it sells, then the balance must be paid in money if it is paid at all.

That people may pay by personal check, trade acceptances, and other credit instruments as well as bank sight drafts in no way alters the fundamental result. All these various methods of payment are made directly or indirectly through the aid of banks. For example, if a Chicago merchant sends his personal check instead of a bank draft in payment for shoes bought in New York, the check is cashed in New York and comes back to his local bank for collection, and if the bank draws a draft on its New York correspondent to pay this check, it thus depletes its New York funds just as if it had sold the

draft to its patron. If the local merchant makes arrangements to pay by means of a trade acceptance, this also involves the aid of the bank — when the acceptance becomes due a month or two later. The trade acceptance does not complete the transaction; it merely postpones payment. When it matures, it will be sent back to the New York bank's Chicago correspondent, who will present it to the Chicago merchant for payment. Then he may pay by check or bank draft, with the results already indicated. So we come back to our main conclusion that excess of purchases over sales, no matter from or to whom made, or what kind of credit instrument is used, is likely to result in the shipment of money. This conclusion is modified, however, by the discussion in Section 19, below.

When purchases do thus exceed sales and the demand for drafts becomes greater than the supply, buyers of drafts compete for the available supply and a premium may result in Chicago on New York exchange. That is to say, persons or banks having payments to meet in New York may pay more than $1000 for a $1000 draft. This is because they would rather pay a small premium than pay the expenses of shipping money. Naturally the premium cannot exceed the cost of shipping money. If a Chicago bank, for instance, desired to add $10,000 to its deposits in New York, and could ship that much gold at a cost of $5, then the maximum premium it would pay on a $10,000 draft would be $5. This premium must not be confused with the service charge that some banks make on exchange, although banks may allege as justification for their service charge the cost of shipping gold. On some of the topics discussed in this chapter more will be said in our next chapter on Foreign Exchange.

18. Clearings and collections through federal reserve banks. The whole problem of domestic exchange has been modified by the development of the Federal Reserve System since 1914, with its facilities for clearing and collecting checks. In fact some parts of the foregoing discussion would not fit present conditions if all banks in the country were members of the Federal Reserve System and made full use of its facilities. That discussion will have served a useful purpose if it does nothing more than help the student appreciate at full worth the value of the Federal Reserve System, which has been described in an earlier chapter. Here we need only touch upon its use as an agency to clear and collect checks and other

credit instruments. Each of the twelve federal reserve banks serves as a clearing-house for its member banks. It receives at full face value from its member banks checks drawn on any national bank and on such state banks and trust companies as will "remit at par," and this now includes more than ninety-five per cent of all banks in the country. To illustrate the process of clearing and collecting checks: If a member bank in Rochester, New York, cashes a check drawn on a bank in Albany, New York, it may send this check to its reserve bank, the Federal Reserve Bank of New York. The reserve bank then sends the check home to the Albany bank, or to its local clearing-house, but no shipment of money or credit instrument is necessary. Both banks, as members of the reserve bank, have deposits with it. So it merely credits the Rochester bank with an additional deposit to the amount of the check, and charges that much off the account of the Albany bank.

It would be possible for the reserve bank of any district to clear all checks of all banks in the district in this way, but the banks in individual cities retain their local clearing-house for the clearing of local checks and for some out-of-town checks. If in the course of its business any member bank has more checks charged up against its account with the reserve bank than it has credited to its account, its deposit with the reserve bank is naturally depleted and may fall below the minimum legal reserve ratio. In that case it may build up its account by discounting commercial paper with the reserve bank or by any of the other methods described in Chapter XXX. Members of local clearing-houses may make use of the reserve bank of their district to settle their balances with their clearing-house, as already described in Section 6 of this chapter.

Federal reserve banks, in addition to receiving from and collecting for member banks checks on other banks, may receive from member banks for collection other credit instruments, such as promissory notes and time and sight drafts. There is no charge by the reserve banks for this service except fifteen cents for each item returned unpaid.[1] This small charge is made to discourage the use of the federal reserve banks as dunning agencies by business men who have difficulty in collecting their bills.

19. The Gold Settlement Fund. Each of the twelve federal reserve banks not only gives and receives credit for checks sent in by

[1] Dewey and Shugrue, Banking and Credit, p. 296.

its own member banks, but gives and receives credit for checks sent in by member banks of the other eleven reserve banks. Such checks it credits to the account of the federal reserve bank of the banks that send them in, which in turn credits them to the account of such banks. This can be made clear by an example. A bank in Albany, New York, member of the New York Federal Reserve Bank, receives a check drawn on a Saint Louis bank, member of the Saint Louis Federal Reserve Bank. This check it sends to the Saint Louis Federal Reserve Bank, which credits the amount to the New York Federal Reserve Bank, which in turn credits it to the Albany bank. The Saint Louis Federal Reserve Bank, of course, charges the check against the account of its own member bank upon which it is drawn. So far as the two member banks are concerned, the transaction is now closed. But there remains a settlement to be made between the two reserve banks.

If each reserve bank received the same amount of checks from the member banks of each of the other reserve banks as each of the other reserve banks received respectively from its own members, then what each reserve bank owed each of the others would be offset by what each of the others owed it, and no balances would remain to be paid as a result of their clearing and collecting of checks. But in practice no such coincidences are likely to occur. Each reserve bank may have heavy balances due from some other reserve banks and heavy balances due to others. For this reason it became desirable to devise a sort of clearing-house for the twelve reserve banks, to avoid as far as possible the necessity of shipping gold from one to another in settling balances. The device used is called the "Gold Settlement Fund." Each reserve bank is required to keep with the Treasury of the United States a balance of not less than $1,000,000. This fund is kept as a special account of the Federal Reserve Board and is counted as part of the legal reserves of the reserve banks. At the close of business each day each reserve bank telegraphs to the Federal Reserve Board at Washington the amounts due from it to each of the other reserve banks. This is the total amount of the items it has received from the member banks of the other reserve banks. The clerks of the Federal Reserve Board then credit each of the twelve reserve banks with the amount due to it from each of the other eleven, and charge it with the amounts due from it to

each of the others. The balance they add or subtract, as the case may be, to or from the bank's account in the Gold Settlement Fund. Compared with the total amount of clearings thus effected, the balances to be added to or subtracted from the Gold Settlement Fund accounts of the reserve banks are very small.

The operations of the Gold Settlement Fund have almost entirely eliminated the shipment of money from one part of the country to another except federal reserve notes, and thus save the country, in expenses for such shipments or for exchange charges, many millions of dollars a year.

The foregoing discussion of clearings, collections, and exchange within a given country, as illustrated by conditions in the United States, although incomplete in many details, should give the student an understanding of the fundamental principles involved. It should also help him to understand the somewhat more complicated but similar subject of foreign exchange to be considered in the next chapter.

EXERCISES

1. If there were five banks in a certain city and each had received during the course of the day checks drawn on each of the others, how many payments would be required in clearing and collecting by each of the three methods described in Section 4 of this chapter?
2. In Tables XXIX and XXX the process of clearing is illustrated by the claims of each of four banks on each of the other three. Substitute for the twelve items in Table XXIX twelve other items taken at random, using small numbers for convenience. Find the totals as in Table XXIX, and from them construct another table like Table XXX. Explain your results.
3. Under what conditions does it become necessary for the people of one section of a country to ship money to another section of the country in payment for goods?
4. Jones in Saint Louis buys rugs from Smith in New York, and pays for them with his personal check on his Saint Louis bank, a member of the Federal Reserve System. Smith deposits the check for credit in his bank in New York, also a member of the Federal Reserve System. What banking transactions remain to be carried through before this deal is settled?
5. Explain the use of the Gold Settlement Fund.

REFERENCES

I

Dewey, D. R., and Shugrue, M. J. *Banking and Credit,* chapters 3, 4, and 21.
Holdsworth, J. T. *Money and Banking* (1920 edition), chapter 14.
Moulton, H. G. *Financial Organization of Society,* chapter 22, sections 1–2.
Money and Banking, part II, sections 45–54.

II

Cannon, J. G. *Clearing-Houses.*
Langston, L. H., and Whitney, N. R. *Banking Practice.*

CHAPTER XXXIII

FOREIGN EXCHANGE

1. Ordinarily no foreign money except gold is acceptable in any country; cost of making foreign payments in gold. When Jones in New York buys from Smith in New York a lot of overcoats, he pays for them in dollars. But if he buys the overcoats from Smith in London he must pay in pounds sterling, or if he buys from Schmidt in Berlin he probably will pay in German marks. On the other hand, if he sells to Smith in London, or to Schmidt in Berlin, he will expect to be paid in dollars, and not in pounds sterling or German marks. This is because in any country, in normal times, its own money is preferred to foreign money, and foreign money, except gold coins, is not generally acceptable.

But since English money is not current in the United States, how can Jones obtain the pounds sterling with which to pay Smith in English money? To make our problem concrete, assume that Jones has bought of Smith in London overcoats valued at £1000 sterling. One method of payment would be for Jones to ship in gold coin or bullion the quantity of gold required to make £1000 in English money. A pound sterling contains 113.002 grains of pure gold, as against the 23.22 grains of gold in an American dollar. Since in England, as in the United States, the value of gold in the gold coins is practically the same as the face value of the coin, it is a matter of indifference as to whether or not the gold is coined. If Jones shipped to Smith 1000 times 113.002 grains of pure gold, whether in the form of gold bullion or United States gold coins, it would amount to £1000 sterling, and be acceptable. That much gold would cost Jones in New York $4866.50, or, if it were in the form of coins, it would be that many dollars. That is to say, it takes $4.8665 to make one pound sterling. To ship this much gold to London would cost in packing, carting, shipping charges, insurance, and loss of interest during the time of passage, more than $20, so the total cost to Jones of settling his £1000 obligation would be more than $4886.50.

If, now, instead of having bought overcoats from Smith in Lon-

don, Jones had sold him overcoats to the value of £1000, how could he collect the money? One method would be to take his pay from Smith in gold, 1000 times 113.002 grains of pure gold, and have this shipped to New York at a cost of more than $20. This gold, as indicated, would be worth $4866.50, and would net him after he paid the shipping costs less than $4846.50. Now it is obvious that if there were any method by means of which Jones could make his payment of £1000 in London at less than a total cost of $4886.50, or at the rate of $4.8865 per pound sterling, he would be glad to use it. Likewise if there were any method of collecting his £1000 sterling and converting it into dollars that would net him more than $4846.50, or at the rate of $4.8465 per pound, he would be glad to use that.

2. Service performed by foreign exchange bankers. In normal times the foreign exchange bankers in New York offer Jones just such a method. If Jones has a payment of £1000 due to Smith in London, they will sell him a demand bank draft on London for that amount for less than $4.8865 per pound, and this bank draft Jones may mail to Smith at the expense of a postage stamp. Since the bank draft is payable in English money at sight, it will be perfectly acceptable to Smith, who will quite likely prefer it to its equivalent in gold. Likewise, if Jones has a payment of £1000 due from Smith in London, he may collect through the exchange bankers by drawing a commercial demand or sight draft against Smith, and selling this to the bankers. Ordinarily they will pay him more than $4846.50 for a £1000 draft, or more than $4.8465 per pound. The reason why foreign exchange bankers can do this is simple. They have an account with a correspondent bank in London, and can therefore draw drafts against this account in pounds sterling just as an individual in the United States can draw checks in dollars against his personal checking account in his own bank. They can buy commercial drafts from persons having payments due from English business men and send them to their correspondent bank for collection, the proceeds of such drafts being credited to their account. So long as any foreign exchange bank manages to buy about the same amount of drafts on London that it sells, it need not ship gold either way, and the difference between the rate it pays for commercial drafts and the rate it charges for bank drafts represents its gain on such transactions. For example, if during the course of a month a cer-

tain New York bank bought from New York business men who had sold goods to Englishmen, commercial sight drafts amounting to £1,000,000, and during the same period sold bank demand drafts amounting to £1,000,000 to New York business men having payments to make to Englishmen, its balance at the end of the month with its correspondent bank in London would be unchanged — the sums the London bank collected on the commercial drafts would just offset the sums it paid out in cashing bank drafts. If the New York bank paid for the commercial drafts on the average $4.86 per pound, and received for its bank drafts on the average $4.87 per pound, it would have made an average gross profit of $0.01 per pound, or $10,000. At the same time it would have saved the buyers and sellers concerned about $40,000 in shipping charges, leaving them a net gain of $30,000 from the use of drafts.

3. Forms of foreign exchange. Bank drafts and commercial drafts, drawn by banks or persons in one country on banks or persons in another country and payable in the money of the country on which they are drawn, are referred to as "foreign exchange." They are the two most commonly used forms, but any written order to pay money in a foreign country may be called foreign exchange, such as bank acceptances and travelers' checks. Most of the forms of foreign exchange have their counterparts in forms of domestic exchange, which have been discussed in the preceding chapter. It is more or less customary to call drafts drawn on foreign countries "bills," or "bills of exchange," as "bank bills," or "commercial bills," to distinguish them from domestic bank drafts and commercial drafts. But this distinction is not always observed, the two terms being used to some extent interchangeably. It is also customary to call bank drafts, payable at sight, "demand bills," while commercial drafts, payable at sight, are called "sight bills." An important form of foreign exchange is represented by the commercial letter of credit. This involves an arrangement by the buyer with his bank to permit the seller to draw against it or its correspondent bank instead of against the buyer. This arrangement is advantageous to the seller because it in effect gives him a bank draft to discount at his local bank instead of merely a commercial draft, and it is advantageous to the buyer because it permits him to buy on time from sellers who otherwise would refuse to extend credit to him.

The term "foreign exchange" should never be confused with the term "foreign trade." Foreign trade refers to the actual buying and selling of goods — foreign exchange to instruments used in making payment.

4. The rate and the par of exchange. By the rate of foreign exchange is meant the rate at which the money of one country exchanges for the money of another. There is a rate of exchange, then, between each commercial country and every other country. This rate under normal and sound financial conditions tends to fluctuate closely around the par of exchange. Assuming that both countries use gold as their standard of value, the par of exchange between them indicates the relative quantities of gold in their unit of value. As already stated in this chapter, the English unit of value, the pound sterling or the gold sovereign, contains 113.002 grains of pure gold, or 4.8665 times as much as our gold dollar of 23.22 grains. Therefore, the par of exchange between our money and English money is 4.8665. Similarly the par of exchange between the dollar and the French franc is 0.193, because the franc contains only 0.193 as much gold as the dollar. Sometimes the method of stating the ratio is reversed, and the par is expressed as 5.18 francs to the dollar. It has become customary, however, in this country to quote all foreign exchange ratios in terms of the dollar, as $4.8665 for sterling exchange, $0.193 for French exchange, and $0.238 for German exchange. Since foreign exchange transactions are centered in the great financial centers of the respective countries, it has become customary to speak of the rate of exchange of New York on London, or of New York on Berlin, rather than of the rate of the United States on England, and so on.

5. The gold export and gold import points. The reasons why the rate of exchange between any two countries tends to fluctuate closely around par are quite simple, and have already been indicated. The most that a buyer of foreign exchange will normally pay for a draft or bill of exchange is par plus the cost of shipping gold. If he has to pay more than that, he will ship gold instead of buying exchange. The least the seller of foreign exchange will take for a draft or bill of exchange (provided it is a demand draft) is par less the cost of importing the gold from the country concerned. If he cannot get that much for his draft, he will do better to collect the gold

abroad and bring it home or have it sent home at his own expense. So long as the gold standard is maintained in both countries concerned and no impediment put on the export of gold, the rate of exchange cannot for those two reasons, rise much above or fall much below par. When the rate has risen to the point at which it pays the would-be buyer to ship gold instead of buying a draft, it is said to have reached the gold export point, and when it has fallen so low that it pays the would-be seller to collect his own draft by importing gold at his own expense, it is said to have reached the gold import point. Between the gold export and gold import points the rate will fluctuate according to variations in the demand and supply of foreign exchange. The market rate of foreign exchange, like that of any other price, is the rate or price that equalizes the quantity demanded and the quantity supplied.

6. Sources of supply and demand; primary and secondary sources. Let us note, now, the sources of supply and demand of foreign exchange in the New York market, and the effect of supply and demand upon the rate. Generally speaking, any one in the United States who has payments to make in other countries makes the payments with some form of foreign exchange, usually bought from a foreign exchange banker. Generally speaking, also, any one in the United States having payments due from any one in a foreign country is paid in some form of foreign exchange.

It should be kept in mind in this connection that payments are made to persons in one country by persons in another country not only for merchandise, but for other things. Americans, for example, travel in foreign countries, ride on foreign railroads, eat and sleep in foreign hotels, patronize foreign pleasure resorts, ship goods in foreign vessels, employ the services of foreign bankers, buy stocks and bonds of foreign corporations and bonds of foreign governments, meet interest payments on loans from foreigners, pay off these loans when due, make gifts of money to relatives in foreign countries, donate large sums to foreigners in case of earthquakes, famine, or epidemics. To pay for all these things they ordinarily buy foreign exchange. The sum total of all these payments, together with the payments for imports of goods, therefore constitutes the total demand for foreign exchange. Similarly Americans receive payment not only for exports of merchandise, but for banking and shipping

services performed for foreigners, for stocks and bonds sold to them, and so on. The sum total of such payments due from foreigners to Americans constitutes the total supply of foreign exchange in the United States. In one respect we must qualify these statements concerning the total supply and demand. We have tacitly been assuming that Americans take the initiative in arranging both for payments due, by buying exchange, and for collecting, by drawing drafts and selling them. These arrangements in both cases might be made by the foreigners — they could draw drafts against Americans for payments due to themselves, and send drafts to Americans for payments due to Americans. From the point of view of the foreign exchange market, however, it would make no difference which of these methods was used, for the simple reason that demand for drafts in London on New York is equivalent to a supply of drafts in New York on London.

When we speak of the total demand and supply, we should perhaps make a distinction between the primary sources of demand and supply and the secondary sources. The primary sources of demand are those already referred to — the payments of various kinds that Americans for various reasons make to foreigners; the primary sources of supply are the payments foreigners for various reasons make to Americans. In addition to the demand of these various payers for drafts, there is the demand of foreign exchange bankers for drafts, and in addition to the supply of drafts from these various sellers or payees, there is the supply that may be bought from the bankers, which we may call "secondary sources" of demand and supply. The bankers buy only in order to sell at a profit, or sell hoping to buy back at a lower price, except in those cases when they themselves have payments to make to or receive from foreigners. Therefore what the bankers buy or sell does not affect the relation between the total demand and the total supply. This may be illustrated by a simple example. A in New York sells to B in London £1000 worth of goods, draws a draft against B, and offers it for sale. C in New York buys from D in London £1000 worth of goods, and wants to buy a draft. The total supply and demand of foreign exchange is now equal. A might sell his draft to C. But it is more convenient for him to sell it to a bank than to hunt for an importer who wants a draft. C might buy from A, but it is more convenient for him to

buy from a bank than to hunt for an exporter with a draft for sale. If the bank buys the commercial draft from A and sells its own draft to C, total transactions in foreign exchange amount to £2000 bought and £2000 sold. Demand and supply are still equal, and the total payments to be made abroad are still £1000, and the total payments to be received £1000. Hereafter when we speak of the total demand and supply we will understand the total demand and supply from primary sources. Only when bankers themselves buy without selling an equal amount or sell without buying an equal amount do they add to the total demand or supply in that sense of the terms.

7. Simplified conditions assumed to show relation between demand and supply and the rate of exchange. Let us consider next the effect of supply and demand upon the rate of exchange and the effect of the rate on supply and demand. Since this is a rather complicated problem when all the facts are taken into consideration at once, let us simplify matters by making several assumptions contrary to fact. These assumptions will not invalidate the conclusions we may draw, as we can show later. Assume, then, that we in the United States carry on foreign trade only with the English and the English only with us; assume that we take the initiative in all payments made — drawing drafts on the English when we sell to them or for other reasons have payments due, and paying the English in all cases with bank drafts; assume that we sell all our commercial drafts to New York foreign exchange bankers and buy all our bank drafts from these New York bankers; assume that only demand or sight drafts or bills of exchange are used in these transactions; finally, assume that at the time under consideration all our bankers had comfortable balances on deposit with their correspondent banks in London. Under these simplified conditions, how would supply and demand and the rate of foreign exchange interact? At the outset we may say that the rate will be such as to equalize demand and supply, just as will any market price. But the foreign exchange market differs in important respects from other markets, and therefore it is necessary to examine it in some detail.

8. Conditions tending to fix the rate at par. As a convenient starting-point suppose that the total payments being made to Englishmen by Americans for goods, services, and so on just exactly

equaled the total payments received. The total demand for bank drafts in New York would then be equal to the total supply of commercial bills offered for sale to the banks. Suppose also that the New York bankers could use their funds at home and on deposit in London with equal advantage because the current rate of interest in both centers was the same. Under these conditions it is likely that the rate of exchange would be very close to par, with the rate for bank drafts slightly above the rate for commercial bills. The difference between bank drafts and commercial bills would be the result in part of a trifling degree of risk involved of payment being refused or delayed on the commercial bills when they were presented for payment in London, a risk that is absent in bank drafts. But it would be accounted for in part by the fact that the banks will not buy commercial bills and sell bank drafts except for profit, and they will therefore pay less than they charge. This margin of profit is persistent but narrow, because of the keen competition for the business among the banks. When bank drafts are quoted at $4.86, commercial bills may, for example, be quoted at one sixteenth or one eighth cent lower. This is similar to the gain made by the retail grocer in selling sugar. Foreign exchange bankers also have other sources of gain, as when they buy exchange and profit from a general rise in the rate before they sell — a speculative profit; or when they buy time drafts and hold them until maturity, thus earning the discount or interest.

The rate would be close to par for both bank drafts and commercial bills for this reason: If a bank found that it could get more than par, say $4.88, for a bank draft in New York, it would pay it to sell at that price, but it would not pay it to buy commercial drafts at, let us say $4.8775. If, for example, it sold £10,000 of bank drafts at $4.88, it would get for them $48,800, but when they arrived in London and were presented for payment to our bank's correspondent bank, they would be cashed at face value or par, $48,665. The difference would represent the bank's gain, and would amount to $135. This would, of course, reduce its London balance by the amount of the draft, and increase its balance in New York by the price it received. But we have assumed that the bank would be able to employ its funds to equally good advantage on both sides, so that this transfer of funds, as we may call it, would be a matter of

indifference, provided only it still retained a working balance in London.

It would not pay the bank to buy a commercial draft now at $4.8775 unless it desired to restore its balance in London to its former figure. To illustrate, £10,000 in commercial drafts would cost it at that rate $48,775, and when sent over to its correspondent bank for collection would bring into its account only par, or $48,665. It would lose on this transaction $110, which would offset all the gain of $135 on the other deal except $25.

But if any exchange banker sold bills without buying an equal amount, he would upset the equilibrium between demand and supply which we have assumed. The supply of bills in New York on London would then exceed the demand, and price would tend to drop. Not only one banker would take advantage of this situation, but many, and the price would drop until the rates were close to par, or until the bankers had reduced their balances in London too low to permit further selling of bills not covered by equal purchases, or until total demand and supply aside from the bankers' own demand changed in response to the falling rate. Similar reasoning would indicate that the rate could not be far below par so long as the total amounts of payments to be made in both directions were equal.

9. **When demand exceeds supply at a given rate, the rate rises, possibly to the gold export point.** Suppose next that we did have at a given time an exact equilibrium between the payments to be made in both directions for goods and services, and that the rate on bank demand drafts were par, $4.8665. Suppose then that because American merchants began either to buy larger quantities of goods or to sell smaller quantities, the total demand for bank drafts became greater than the total supply of commercial bills. Bankers in New York would then in the aggregate be unable to buy as many bills as they sold. Their correspondent banks in London would under these conditions pay out larger sums in cashing their drafts than they collected on the commercial bills remitted to them. As a result the balances of the New York banks in London would be depleted. After their balances became quite low, the New York bankers would be reluctant to deplete them still further and would be inclined to charge more for bank drafts in order to discourage buying of these by their customers, and to pay more in competition

with one another for commercial bills in order to build up, if possible, their diminishing balances by remitting larger quantities of commercial bills for collection. Thus the rate on both classes of bills would rise.

It is possible that the rising rate of exchange would increase the total supply by stimulating merchants to sell in order to take advantage of the high rate which they could get for their commercial bills, or that it would reduce the demand for bank drafts by inducing buyers to postpone buying until the rate became more favorable, or that the rise in price would in some other way increase supply relatively to demand and bring about a reaction or fall. If, however, the excess of demand over supply were persistent, the rise in the rate would continue until the gold export point were reached. The gold export point, as already explained, is the rate at which it pays would-be buyers of foreign exchange to ship gold and pay the charges involved rather than to buy exchange. On bank demand bills it is about $4.89. Once this rate were reached, gold would be shipped to England, more likely by bankers themselves than by exporters of merchandise. Bankers who shipped gold would thus maintain their balances in London and be able to continue selling drafts at the gold export point rate, enough above par to pay for the expense of shipping gold and something in addition for their labor. Bankers shipping gold in hundreds of thousands or millions of dollars can ship more cheaply than individual importers of merchandise. The banker who shipped gold might explain his action by saying that it is cheaper for him to maintain his balance abroad by shipping gold than by buying commercial bills at the current rate of $4.89, or more, or buying bills from another banker.

10. Why gold exports tend to cause a fall in the rate. If gold is exported in large quantities from New York to London, it tends to bring about a fall in the rate of exchange below the gold export point for the following reasons: The quantity of gold, and therefore of bank reserves, in New York is diminished and the quantity of gold and bank reserves in London is increased by the amount shipped. This tends to cause banks in New York to make new loans less freely to customers and possibly to reduce some of the outstanding loans. The relative scarcity of loans permits the New York banks to raise the discount rate, and they may deliberately raise the rate to dis-

courage further borrowing from the banks. In London the opposite is true. Banks find it desirable to encourage expansion of loans in order to utilize the additional gold and therefore reduce the discount rate. The higher interest rates and the difficulty of obtaining loans in New York make New Yorkers more eager to sell goods and less eager to buy. They thereby tend to depress prices of merchandise. At the same time in London for similar reasons prices tend to rise. Loans are easy to get; the interest rate is low, and this encourages men to borrow and buy, while it relieves sellers from the pressure to sell to pay off loans. Under these conditions, with prices relatively lower in New York than before and prices relatively higher in London than before, our exporters tend to sell more goods in England and our importers to buy less. This reduces the demand for exchange on London and increases the supply, and thereby tends to cause the rate to fall until equilibrium is once more established between demand and supply. An additional factor tending to bring about a decline in the rate is the fact that bankers having gold available on which to draw in London can gain a profit now by selling drafts and thus reducing their balance in London where the interest rate has fallen and increasing their balance in New York where the interest rate has risen. For example, if a banker under such conditions sells a draft for £10,000 on his correspondent bank in London at $4.89, he reduces his funds in London where the interest rate is, say 4 per cent, by $48,665 in terms of our money, and increases his funds in New York, where he can earn, say 4.5 per cent, by $48,900.

11. Why the rate cannot fall much below the gold import point. Just as the rate of exchange cannot rise much above par unless there is an excess of demand over supply, so it cannot fall much below par unless there is an excess of supply over demand. The reasoning is similar to that above, and need not be repeated. Furthermore, just as a rise in the rate through a persistent excess of demand over supply leads to exports of gold, and thus sets in operation forces tending to bring the rate down or at least keep it from rising higher, so a persistent excess of supply over demand leads to imports of gold and thus sets in operation forces tending to raise the rate toward par, or at least to keep it from sinking lower. The gold import point for bank demand bills is about $4.84, and any lower rate makes it

cheaper for at least some exporters to collect their own commercial bills and pay the expenses of shipping gold than to accept the low rate for their exchange, and makes it pay the bankers to import gold from London to maintain their balances on this side rather than to continue selling drafts. The consequences of such gold imports are so like the consequences of gold exports that it would be needless repetition to follow through the argument again. It need merely be noted that what happens in New York when gold is exported happens in London when gold is imported from there, and *vice versa*.

12. Total demand and supply of exchange in New York on all countries and the rates of exchange. In order to simplify exposition we made various assumptions concerning the supply and demand of foreign exchange and determination of the rate of exchange. It can readily be shown that these assumptions do not invalidate any conclusions reached in the foregoing discussion. We assumed for convenience that we in the United States were trading only with the English and the English only with us, and that the total demand and supply of foreign exchange in New York arose from this trade between two peoples. Actually our people and the English also trade with people all over the world. The total demand for foreign exchange in the United States may therefore be said to be measured, not by our payments to English people alone, but by our payments to all foreign countries, and the total supply of foreign exchange may be said to be measured by the payments we receive from the people of all foreign countries. Foreign exchange rates in New York on any country cannot normally rise far above par unless the total demand for exchange on all countries combined exceeds the total supply — that is, unless for all purposes combined we have greater payments to make to than to receive from all other countries.

Mere excess payments due to one country alone will not necessarily cause exchange in New York on that country to rise above the gold export point, or even above par. For example, we may buy more from the people of France than we sell to them, while at the same time we are selling more to the English than we are buying from them. At the same time, also, the English may be selling more to the French than they are buying from them. Under these circumstances one might think that in New York exchange on Paris would be above par and on London below par, while in London the

rate on Paris would be below par, or, what comes to the same thing, the rate in Paris on London would be above par. Furthermore, one might think that, if these excess payments in all three cases continued, gold would be exported from the United States to France, from France to England, and from England to the United States. But the shipment of gold around a circle like this would be wasted motion, since after the third move it would be back where it started. Gold movements under these circumstances would be unlikely to take place. The foreign exchange bankers would prevent such an occurrence by taking advantage of the opportunity to make a gain in the foreign exchange market. For example, if the New York rates on London were below par, then the New York bankers could buy £1000 sterling, payable in London for less than par, say $4850. With £1000 sterling in London they could buy more than 25,200 francs, if the pound sterling were above par in terms of francs, since the par of the pound sterling in francs is 25.2. If the rate were above par, at, let us say, 25.3, the £1000 sterling would buy 25,300 francs. But if the franc were above par in New York, let us say at $.194, then $4850, which by way of London would bring in 25,300 francs, would by direct purchase of a draft on Paris bring only 25,000 francs. That is to say, in New York 25,000 francs at $.194 per franc would cost $4850.

Under these circumstances bankers in New York would build up their balances in Paris by purchasing drafts on London, and then, using the proceeds of these drafts on London, buy drafts in London on Paris. They would not buy drafts on Paris direct. This would by so much reduce the demand in New York for exchange on Paris, tending to lower the rate, and increase the demand for drafts on London, tending to raise the rate. At the same time it would increase the demand for drafts in London on Paris, tending to raise that rate. Such three-cornered deals in exchange are referred to as "arbitrage," and foreign exchange bankers are constantly on the alert to take advantage of such possibilities of profit. Therefore it follows that no country on a gold standard is likely at the same time to find its exchange on some foreign countries much above par and on others below par, if these foreign countries also have the gold standard, and it is still less likely persistently to import gold in large quantities from some countries while it exports gold to others. An exception to this rule is England's imports of gold from South Africa and sub-

sequent exports of this gold to other countries. But this gold represents a commodity produced for export by the African mines and shipped to England as a convenient distributing center. There are other exceptions of a similar kind, but ordinarily heavy and persistent exports of gold from any country take place only when its total payments to all countries exceed the total payments due to it. The balance of payments — its excess of payments due to others — must then be met with gold.

13. **The effect on the rate of exchange is the same whether the buyer pays with a bank draft or the seller draws a commercial draft.** To simplify our explanation of the sources of supply and demand of foreign exchange in New York, we assumed that American buyers and American sellers take the initiative in arranging for payment — that Americans buy bank drafts to pay foreigners and sell commercial bills to banks to collect sums due from foreigners. In actual practice not all payments are made in this way; in some cases Englishmen, for instance, draw commercial bills on Americans for sums due from the American buyers, or buy bank drafts from London banks payable in New York, instead of waiting for American sellers to draw on them. This does not invalidate the reasoning in foregoing sections, because the effect on supply and demand of foreign exchange and on the rate of exchange between New York and London is identical regardless of which of these two methods is used. In every case in which a payment is due from New York to London, a draft will be bought or paid for at a New York bank and sold to or collected at a London bank. If the New York buyer takes the initiative, he buys the draft from his bank and sends it to the London seller, who, in effect, sells it to his bank — that is to say, he cashes it and gets his money. If the London seller takes the initiative, he draws a draft against the American buyer and sells it to his bank in London. The London bank sends it over to its New York correspondent, who collects from the New York buyer. The only difference is this: In the one case the draft is first sold by a bank in New York and then bought by a bank in London, and in the other case it is first bought by a bank in London and then sold, or collected, which amounts to the same thing, by a bank in New York. Reversing the order of buying and selling does not, of course, increase or decrease the amount bought and sold.

14. Why the New York rate is the rate for the country as a whole. The assumption that all buying and selling of foreign exchange in the United States is done through New York banks, although contrary to fact, cannot invalidate the conclusion reached on the relation between total supply and demand and market rate of exchange. Foreign exchange bought and sold by banks outside of New York may be handled through the New York banks, and, if not handled through the New York banks, it is still part of the total supply and demand of exchange in the United States, which has been the subject of our discussion. Furthermore, the rates charged by banks outside of New York cannot vary materially from the rate charged by the New York banks because of the ease of transfer of funds within the United States under the Federal Reserve System. Practically speaking, then, the rate in New York is the rate for the country as a whole.

15. Cable transfers, demand bills, and time bills. We come now to our fourth assumption — that only bank demand drafts and commercial sight bills are used. Obviously the fact that other forms of foreign exchange are used does not affect the relation between the total demand and supply, or the general rate, or prevent gold exports or gold imports if the demand and supply remain persistently unequal.

It must be explained, however, that the rates for drafts of different maturities are not the same. A draft on London payable at a future date is worth less than one payable on demand, just as in the case of a domestic draft, such as a draft on Chicago.

In respect to maturity, or date of payment, we may distinguish three kinds of drafts used in foreign trade, namely:

(1) Cable transfers.
(2) Demand or sight drafts or bills.
(3) Time drafts or bills.

Cable transfers, as Escher says, are, strictly speaking, not drafts or bills of exchange at all, since they are not written orders. They are telegraphed or cabled orders to pay, generally cabled by one bank to another. Nevertheless, they serve the same purpose as written drafts and are the same in substance if not in form. They constitute part of the total supply and demand of exchange and thereby influence the general rate. Demand or sight drafts are

written orders to pay on demand the sum specified on the face. When drawn by a bank they are usually called "demand bills," and when drawn by sellers of merchandise they are called "commercial sight bills." Time drafts are payable a specified number of days after sight, as thirty, sixty, or ninety days. Time drafts running for sixty days or more when drawn by a bank are called "bankers' long bills," and when drawn by sellers of merchandise, "commercial long bills."

The rate on cable transfers is higher than the rate on demand or sight bills, and the rate on these is higher than the rate on time or long bills. The reason is simple. When a New York banker sells a cable transfer, he receives payment at practically the same time that his correspondent in London pays out the amount of the order and charges it to his account. In other words, his funds in London are at once depleted by the amount they are increased in New York. But when he sells a demand bill, he receives payment at once, while the bill cannot be presented for payment at his correspondent bank for about ten days or two weeks — it must be remitted by mail. Thus he gains the use of money received for the bill that length of time before his funds in London are depleted by the amount of the bill. It follows from this that demand bills will sell lower than cable transfers by an amount roughly approximating interest at the current rate for about ten days. If both should sell at the same rate, bankers could make money by selling demand bills, lending the proceeds for ten days, and then buying cable transfers to cover the amount of the demand bills sold. Similarly long bills sell at a lower rate than demand bills — the difference representing interest at the current rate for the time the long bills run. Recent quotations show demand bills three-eighths cent per pound sterling lower than cable transfers, and sixty-day bills three cents lower than demand bills. These differences tend to be greater the higher the current rate of interest, but do not exactly measure the rate of discount, since other factors enter.

Writers do not agree as to which represents the fundamental rate of exchange — cable transfers or sight bills. This is a matter of small importance, since the two are about the same. It is agreed, however, that, as between bankers' demand bills and commercial sight bills, the rate of the former is the basic rate because it is prac-

tically devoid of risk, and therefore represents more truly than the commercial bill the exchange value of dollars in pounds sterling.

16. Inflation and gold exports; inflation and war. Under sound and normal financial conditions the rate of exchange in any country on other countries cannot persistently remain above the gold export point, for reasons already given in detail. With the rates above the gold export point, gold is exported to various other countries. This reduces the quantity of money in the gold-exporting country, and, what is more important, reduces the quantity of gold on which all other money in a gold-standard country is based — the money which constitutes the bank reserves, which support the deposits subject to check. This induces banks to raise their discount rates, which brings pressure upon business men to reduce their stocks of goods by selling and discourages others from buying, because it makes borrowing more difficult and costly, and this, through its effect on the supply and demand of commodities, brings lower prices. In the foreign countries into which the exported gold flows, the effects are the opposite, and prices there rise. Thus, the gold-exporting country becomes a better country in which to buy and a worse country in which to sell, the demand for foreign exchange then diminishes and the supply increases and the rates fall, bringing an end to the gold-export movement. But under certain abnormal and unsound financial conditions these salutary effects are not felt.

If a country inflates its currency by forcing into circulation abnormally large quantities of paper money, whether bank notes or government paper money, or by coining large quantities of silver money with a bullion content less than its face value, as the United States did at one time, while other countries adhere to a sounder monetary policy, prices within that country will rise above the world level to such an extent that its exports will be checked and its imports increased. Gold exports will follow. If the inflation continues so that the decrease in gold is offset or more than offset by the addition of paper money or debased silver coins, prices will remain high or mount even higher, so that the gold exports will persist, and eventually the country will be drained of its gold. This will mean that the banks will lose their gold reserves and be compelled to suspend payment on their checks except in paper money. It will mean also that the Government, if it has paper money outstanding

that is redeemable in gold, will be compelled to acknowledge its inability to redeem this paper on demand. In short, it will mean that the gold standard no longer exists in that country. Prices will be quoted in irredeemable paper money, and will rise in proportion as that paper money increases in quantity, or even more rapidly. The effect of such depreciation within the country has already been discussed in the chapter on government paper money. Here we need to note only its effect on the rates of foreign exchange.

Before noting these effects it should be stated that one of the most common causes of paper-money inflation is war. A country at war requires great quantities of commodities in addition to its normal requirements, and at the same time produces less because many of its workers are enrolled in the army. This may result in greater imports and smaller exports than usual and in exports of gold. Moreover, the Government may encounter difficulty in raising enough money by taxation, or by borrowing, to pay for the war materials required, and may resort to the issue of paper money directly or through the aid of government controlled banks — borrowing from these banks and taking the loans in the form of bank notes. Thus further exports of gold would follow. The Government must then choose between maintaining the gold standard by restricting its purchases of war materials, and unrestricted buying of war materials with a departure from the gold standard. This must be its choice, be it understood, only if the people are either too ignorant or too unpatriotic to permit the Government to finance the war without resort to paper money inflation. If the Government through war necessity, or perhaps through a mistaken policy of courting public favor, decides to follow the inflation policy and pay for materials with paper money, the country's gold will soon be entirely drained out, except for small quantities hoarded away. The Government may prevent the exportation of gold under these circumstances by making its export illegal, suspending gold payments by the banks and by the treasury while they still retain the major part of their gold. In either case, however, the gold standard is abandoned — since that standard exists only when government paper money and bank notes are freely redeemable in gold.

17. Why a country's exchange falls when its money depreciates. Once a country departs from the gold standard, so that its money is

no longer redeemable in gold, its rates of exchange with other countries bear no relation to the former pars of exchange. During the World War all the countries of Europe that were engaged in the struggle resorted to the overissue of paper money and were compelled to suspend gold payment. They prevented the export of all their gold only by means of suspension of cash payment before the opportunity of exporting all the gold presented itself. The retention of some hundreds of millions of francs, marks, etc., in gold helped in some degree to maintain confidence in the ultimate redemption of the paper money, despite the temporary suspension of gold payment. But once the paper-money issues grew all out of proportion to the gold reserves in the banks, faith in redemption grew small. The gold reserves, even in England and France, although large in the absolute sense, were small relatively to the total quantity of paper money in circulation. In Germany, Austria, and Russia the quantity of paper marks, kronen, and rubles, respectively, became so enormous that not all the wealth in the world put at the disposal of the Governments would have permitted them to redeem the paper at its face value in gold. Under such circumstances a mark, a krone, or a ruble was not worth its face value in gold, but only what one might be able to get for it — and eventually this was practically nothing at all.

Now a bill of exchange on any financial center, as London, Paris, or Berlin, is an order for payment in the money current in that place, not for payment in gold necessarily. Therefore, when Germany departed from the gold standard, and its paper money depreciated until a paper mark was worth only the one-millionth part of a gold mark, the rate of exchange of Berlin on New York was no longer the par of exchange, or 1 mark for $0.238, but roughly 1,000,000 marks for $0.238, and eventually, when depreciation had about run its course to the inevitable practical repudiation, 1,000,000,000,000 marks for $0.238. In England paper-money issues were kept within reasonable bounds, and despite the suspension of gold payments people retained great confidence in the pound sterling, so that it did not at the worst depreciate more than approximately one third in value, and during 1925 Great Britain was able once more to resume gold payments and freely to permit the export of gold to settle its foreign trade balances. The pound sterling was again brought up to

par. Between the extreme depreciation of the German mark and therefore of German exchange, on the one hand, and the moderate depreciation of the pound sterling and sterling exchange on the other, is the depreciation suffered by French, Italian, and Belgian paper money and rates of exchange. But on account of the enormous quantity of paper money outstanding in France, Italy, and Belgium, it is highly improbable that their money will ever be redeemed at its face value. As long as the depreciated paper circulates as the current money in those countries, their exchange in terms of our money can never rise to par, since a draft on Paris is payable in paper francs, and a draft on Rome in paper lire.

Germany, by an ingenious financial device called the "rentenmark," solved the problem of restoring the gold standard by redeeming its paper marks in gold marks at the rate of 1,000,000,000,000 to 1, and thus restored the German mark to its former par of exchange, $0.238. How the French, the Italians, and other European countries will restore the gold standard remains to be seen. That they will restore it by some method is likely, since the advantage of a stable unit of value is very great, and although the gold unit of value is not absolutely stable, it is better than anything else that has ever been devised and applied in practice, and infinitely better than any unit that depends for its value upon the capacity of the government printing presses.

One of the amusing features of the paper-money period in Europe has been the solemn protestation of the government officials that the depreciation in the rates of foreign exchange on their countries has been the result of speculators selling francs, marks, etc.; and that this depreciation in the rate of exchange has so reduced the purchasing power of their money in foreign countries and at home that they have had to print more money to meet the demands of the people. Thus through either ignorance or guile they have put the cart before the horse and have juggled with cause and effect. The overissue of paper money caused the depreciation of money, which caused the depreciation in exchange, which led speculators, who shrewdly foresaw further inflation, to sell exchange in expectation of further decline.

EXERCISES

1. A New York merchant buys £10,000 worth of woolen goods from an English manufacturer. Approximately how many dollars will he save by buying sterling exchange at par rather than shipping gold?
2. What are the sources of supply and demand of sterling exchange in New York?
3. What are the correctives of exchange? Explain how they operate.
4. If in New York the rate of exchange on London is $4.87, and the rate on Paris $0.03, while in London the rate on Paris is 164 francs to the pound, how much in American money will it cost a New York merchant to pay a bill of 300,000 francs in Paris?
5. When two countries both have the gold standard, how can one calculate the par of exchange between them? What is the effect upon the rate of exchange if one of them issues great quantities of inconvertible paper money?

REFERENCES

I

Edie, L. B. *Economics: Principles and Problems*, chapters 29 and 30.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 27 and 28.
Holdsworth, J. T. *Money and Banking* (1920 edition), chapter 15.
Moulton, H. G. *Financial Organization of Society*, chapter 8.

II

Escher, F. *Foreign Exchange Explained.*
Furniss, E. S. *Foreign Exchange.*
Whitaker, A. C. *Foreign Exchange.*

CHAPTER XXXIV

INTERNATIONAL TRADE

1. Foreign trade arises when commodity prices are lower in one country than in another. By international trade is meant trade between the people of one country and the people of another country. Such trade arises when the prices of some commodities are lower in one country than in another. If the difference in price in the case of any commodity is great enough to cover the cost of transportation and still leave something over, alert-minded business men in the one country or the other will take advantage of the opportunity to make a profit. Possibly a business man in the low-price country will buy a lot of the commodity and export it to the high-price country to sell it there at the market price. Possibly a business man in the high-price country will order some of the commodity at the market price in the low-price country and sell it in his own country at the higher market price — in other words, he will import the commodity. If the difference in price persists, a regular import and export business in the commodity will develop, with business men or exporters in the low-price country buying it regularly from manufacturers or wholesalers for sale to business men or importers in the high-price country, who will resell it to wholesalers, retailers, or manufacturers in that country. Possibly manufacturers in the low-price country will themselves establish selling agencies in the high-price country to dispose of part of their product there. Practically all foreign trade is the result of such business transactions, although some goods are bought in foreign countries by travelers and carried home for their own use, and Governments may buy supplies at times in foreign countries, particularly in time of war.

2. Controversies concerning foreign trade. Foreign trade not only profoundly affects the prosperity of the countries concerned, but is the occasion of differences of opinion and bitter controversies in all countries in which it becomes of great importance; that is, in all countries that trade extensively with others. The controversies center about the question as to whether foreign trade should be

free from government restriction, as is trade within a country, or whether, for various reasons, it should be restricted. In particular, there is the question of whether or not the Government of a country should protect its own business men from competition with low-priced commodities imported from foreign lands by levying a tax on imports. In the United States, for instance, the question of "free trade" or "protection" has been the most persistent and frequently the "paramount" issue in presidential campaigns, and import taxes have tended to rise and fall in harmony with the fortunes of the Republican and Democratic Parties, and of their predecessive parties which stood divided on the same issue. It seems desirable, therefore, in a book such as this to note the possible gains or losses resulting from international trade. In the present chapter will be presented the reasoning on the basis of which it may be alleged that two nations may both gain from free trade between them, and that this is in fact the normal outcome of such trade. In the next chapter some opposing arguments will be presented on the basis of which it is alleged that restrictions on international trade are desirable.

3. Differences in prices of commodities within a country measure roughly differences in costs of production. Since a prerequisite to trade between two nations is a difference in the prices of commodities in one as compared with the prices in the other, and since an explanation of the causes of such differences in prices indicates the nature of the gain from international trade, it will be convenient to begin our exposition with a consideration of differences in prices. We must consider two kinds of differences in prices — differences in prices of different commodities in the same country, and differences in prices of the same commodities in different countries. Let us begin with differences of prices of different commodities in the same country. For an extended discussion of this subject we must refer the reader to our various chapters on Demand and Supply, Market Price, and Cost of Production. Here we can do no more than note some general conclusions reached in those chapters and bring them into relation with the problems of foreign trade.

In any country the price of any commodity is governed or measured by its marginal vendibility, or the price that the least able or desirous buyer, who must buy if the whole supply is to be sold, is

able and willing to pay for the least desired unit that he buys. In the case, however, of man-made goods — and with these only international trade is concerned, since natural resources can be neither imported nor exported — if price exceeds cost of production, producers enjoy a profit that stimulates expansion of output, and this causes a fall in price. Similarly, if price is below cost of production, output is cut down and price tends to rise. Therefore, it may be said that prices of man-made goods tend to fluctuate more or less closely about cost of production, being sometimes above and sometimes below cost, but never for any considerable time either far above or far below.

This will be true, however, only if competition exists in the industry and if the total supply is produced at approximately uniform cost. If monopoly exists, then price may, of course, be above cost, as discussed in our chapter on Monopoly and Monopoly Price. If part of the supply is produced under more disadvantageous conditions than other parts, and if this part of the supply is required to meet the demand at the market price, then market price will measure roughly the cost of these most expensive units and exceed the cost of production of the less costly units produced. To some extent these qualifications may modify the conclusions we reach below, but they will not invalidate our reasoning, particularly if we note how they modify our conclusions as we go along.

4. Differences of costs of commodities within a country measure roughly differences in quantity of labor required for their production. Since prices of man-made goods do tend to measure roughly the costs of production, we may say that prices of different commodities vary roughly in proportion to cost. But costs of production of most commodities consist mainly, either directly or indirectly, of the cost of the labor required to produce them. Directly in wages to their own workmen many employers pay out in excess of fifty per cent of the total cost of their product, and in buying materials, buildings, machinery, etc., they pay indirectly the wages of other workmen whose labor indirectly enters into their own product. Therefore, it follows that costs of production, and consequently prices of most articles, vary approximately in proportion to the amount expended in wages in producing them. This is particularly true if the costs represent the costs of the no-profits manufacturer

or of the no-profits farmer producing at or near the margin of cultivation.

But in any country the various business men in the various industries compete with one another for laborers of the various types they need. This tends to bring about substantial equality of wages in all industries for workers of the same general grade, as unskilled, semi-skilled, skilled, and so on. What one industry must pay, others must pay, otherwise their workmen will drift away. It follows that the cost of production of different commodities will vary roughly in proportion to the amount of labor required to produce them — roughly, be it noted, not exactly. If one commodity requires two days of labor for the production of one unit, and another four days of labor, then the cost of the second will be about twice that of the first, provided the same grade of labor is used in both cases, whether it be unskilled, semi-skilled, skilled, or clerical. If several grades of labor were used in producing two commodities, and used in about the same proportion, the same result would follow — the cost, and consequently the price, would vary about in proportion to the total amount of labor required per unit. The same result would not follow if one industry used unskilled labor only or predominantly, while the other used skilled labor, because skilled labor usually commands wages far above those of unskilled labor. This qualification, however, will not invalidate the reasoning that follows, particularly if its bearing is noted as we proceed.

Our reasoning to this point, then, leads to this conclusion — differences in prices among man-made commodities in the same country measure roughly differences in the quantity of labor employed in producing the respective commodities. An article that sells for $10 presumably has been produced at a cost of about twice as many hours or days of labor as one selling for $5, if the labor has been of the same type or types in both cases. We may express this relation by saying that labor in producing the low-priced article has been twice as effectively employed — meaning that quantity of output per unit of labor is twice as great. An interesting illustration of this is represented by the cost of production and price of wheat and corn in the United States. In our leading corn and wheat producing states corn yields on the average about twice as many bushels per

acre as wheat, and many farmers may annually choose between producing on some of their land either a certain quantity of wheat or about twice that quantity of corn. The cost of growing an acre of corn is a little greater than the cost of growing an acre of wheat. We should expect therefore to find that in Chicago the price of corn would normally be a little more than half the price of wheat. And that is, indeed, the normal relation disclosed by market statistics. Perhaps no better example could be given to indicate the drift of the foregoing reasoning on the relation between effectiveness of labor, money cost of production, and market price.[1]

5. Differences in prices in different countries; four conceivable conditions. Let us turn now to consider the causes of differences in prices of the same commodity in different countries. These differences may be the result of differences in the quantity of money relatively to the total physical volume of trade, or to different conditions of production in the one country as compared with the other, or to a combination of these two causes. There must also be considered the differences that result when in either country market price falls below, or rises above, cost of production through fluctuations in demand and supply.

It will simplify and clarify our discussion, without destroying the validity of our conclusions respecting the gains derived from international trade, if we assume that we are concerned with only two countries — say France and England, both of which, let us say, have adopted the gold standard, and as a unit of value use our gold dollar of 23.22 grains of pure gold. If these two countries were isolated from each other so that they could not carry on trade, there might conceivably be four conditions in respect to differences of prices of the same commodities in the two countries, as follows:

(1) The price of each commodity might be the same in both countries.
(2) Prices of all commodities might be uniformly higher in the one than in the other, as twice as high in England as in France.
(3) Prices of all commodities might be higher in one country than in the

[1] It might be argued that labor is just as effectively employed in wheat-growing as in corn-growing because the one bushel of wheat is as valuable as the two bushels of corn. But this is beside our present point, which is to indicate the relative cost of producing wheat and corn. If it takes less labor to produce one unit of one commodity than one unit of another, we may for our present purpose consider labor applied to the production of the first to be more effectively employed than labor applied to the production of the second.

other, but not uniformly higher, ranging higher in England than in France, for example, all the way from ten to one hundred per cent.

(4) Prices of some commodities might be higher in England and of others in France.

Although we say four conceivable conditions as enumerated above, the first two are conceivable only in the abstract mathematical sense. From an economic point of view such conditions may well be called inconceivable. In either country there are literally thousands of commodities the price of each of which is the resultant of various factors affecting demand and supply, and it would be a mere coincidence if the price of any one of these commodities were the same in both countries in the absence of trade relations between them. There would literally not be one chance in a million that all prices would be the same in both countries. For the same reason there would not be one chance in a million that all prices would be uniformly higher in the one country than in the other. We need not therefore consider these two cases further. Consider then the third case.

6. Differences in the quantity of money and credit. What are the factors that might cause all prices in England to be higher than all prices in France, but not uniformly higher, ranging let us say from ten per cent higher for some things up to one hundred per cent higher for others?

All prices might be higher in England than in France, if there were a larger quantity of money and credit, relatively to the physical volume of trade, in England than in France. For the reasoning on which this statement is based, the reader may refer to our chapter on The Qualities and Quantity of Money. That the general level of prices is higher in England than in France has no necessary relation to the effectiveness of labor or the level of real wages in the one country as compared with the other. If all commodity prices were twice as high in England as in France, and money wages were also twice as high, then it would indicate that labor is about equally effective in both countries and enjoys about the same level of real wages. If the higher commodity prices were accompanied by money wages not any higher than in France, then real wages — what the English workers could buy with their money wages — would be lower than the wages of the French workers. The level of

real wages in any country depends upon the quantity of commodities produced in that country and the proportion of all the commodities that the workmen can buy with their money wages. If the total production is large, and the money wages paid to the workers represents a large fraction of the total value of the products, then wages will be high. Conditions favoring these results are discussed in our chapter on Differences in Wages. Here we will merely note that high wages in the sense of large command over commodities — that is, a high standard of living — may be accompanied by either high or low commodity prices.

7. Differences in comparative costs. To say that all prices are higher in England than in France, but not uniformly higher, is merely to state that, in producing one commodity as compared with another, England and France do not have the same comparative advantage. If the price of wheat, for example, is $2 in England and the price of coal is $3, while in France the price of wheat is $1 and the price of coal is $2, then in England coal costs 150 per cent as much as wheat, while in France coal costs 200 per cent as much as wheat. This would indicate roughly that in England 100 men would produce as many bushels of wheat as 150 men could produce tons of coal, while in France 100 men could produce as many bushels of wheat as 200 men could produce tons of coal. It would probably be more accurate to say that it indicates that the 100 men least effectively employed in growing wheat in England, produced as many bushels of wheat as the 150 men least effectively employed in mining coal, produced tons of coal, and so on.

Ordinarily, however, prices of all commodities cannot be higher in one country than in another if the two countries trade with each other and both have the same unit of value, say the gold dollar of 23.22 grains. For under these circumstances many commodities would be exported from the low-price country to the high-price country, and none would be exported from the high-price country to the low-price country. To return to our illustrative countries, England would have all imports and no exports, and therefore a heavy "unfavorable" balance of trade. Leaving out of consideration such other methods of payment as entertainment of travelers, shipping charges, etc., she could pay for the imports only in gold. Exports of gold would lower prices in England and raise prices in France

until the relatively dearest commodities in France rose in price to the English prices and ceased being exported. But the relatively cheaper commodities would still continue to be exported because they would still be lower in price than the English prices, and this would lead to continued exports of gold from England to France, causing a further rise in prices in France and a further decline in England. This would finally result in the relatively dearest commodities in France rising in price above the English prices for the same commodities, and then English goods would begin to be exported to France. Thus we should have reached some sort of stable condition in which some prices were higher in England and others higher in France. But this is our fourth condition enumerated in Section 5 of this chapter. This is the normal relation between prices in two countries with trade relations—some prices higher in the one and other prices higher in the other, and this is the condition which we must examine with the most care in this chapter.

8. Prices of readily portable commodities cannot be much higher in one country than in another. As just indicated in the preceding section, when prices of commodities in England are higher than the corresponding prices in France, but not uniformly higher by the same percentage, it may be presumed that, in producing one commodity as compared with another, England and France do not have the same comparative advantage. The same reasoning applies when prices and costs of some commodities are higher in England than in France, while prices and costs of others are higher in France than in England.

If wheat in England costs $2 a bushel and coal $1 a ton, while in France wheat costs $1 and coal $2, it indicates that, whereas in England it takes twice as much labor to produce a bushel of wheat as it takes to produce a ton of coal, in France it takes half as much labor to produce a bushel of wheat as it takes to produce a ton of coal.

Such extreme differences in prices of wheat and coal in England and France could not, of course, exist if trade relations between them were free, because English wheat-buyers would in that case buy all their wheat in France, or all that was available in France, while French coal-buyers would buy their coal in England, or, what comes to the same thing, English coal-sellers would sell in France

and French wheat-sellers would sell in England. Buyers buy in the cheapest market; sellers sell in the dearest. Similarly, there could be no great differences in the prices of any other readily portable commodity in the one country as compared with the other. Only in the case of commodities which cannot or will not, regardless of price, be carried from the one country to the other will there be differences in prices much more than offsetting costs of transportation from the one country to the other.

Having now shown why prices in one country may be higher than in another, and why prices of some commodities are higher than the prices of others in the same country, and having indicated here briefly and by reference to our chapter on Differences in Wages the fundamental causes of high or low wages, we may proceed to an analysis of the results that flow from international trade — good or bad.

9. Simplified conditions assumed to illustrate gains from foreign trade. As in the case of other complicated problems of economics, the fundamental principles that operate in foreign trade can be brought out most clearly if we simplify the problem by making certain assumptions contrary to fact, but which do not invalidate the reasoning based upon them.

Assume, then, to begin with, that we are concerned only with two countries — England and France; that they both use the gold standard and the gold dollar as their unit of value; that both have the same general level of prices and the same general level of wages, so that workmen of the same degree of skill get the same money wages in both countries; assume that labor costs constitute the same proportion of total costs in both countries, and that each dollar of cost in producing a commodity represents one day of labor required in its production. These various assumptions may seem to give us such artificial conditions that no reasoning based on them could validly be applied to real life. It can readily be shown, however, that none except the last assumption named above seriously affects our conclusions, and the presumption is that not even the last invalidates our conclusions.

On the basis of these assumptions let us analyze the nature of the gain from trade between England and France under two conditions:

(1) When England and France both produce some commodities at lower cost than other commodities, but when the particular commodities produced by England at highest cost are produced by France at lowest cost, and *vice versa*.

(2) When England and France both produce some commodities at higher cost than other commodities, and when the particular commodities produced by England at highest cost are also produced by France at highest cost, and the particular commodities produced by England at lowest cost are produced by France at lowest cost. But the differences in costs are less in England than in France.

10. Comparative costs: Case I. Begin with Case I. For purposes of analysis it will be necessary to consider only two commodities, which we may call X and Y, which may be assumed to represent in their relative costs all commodities in their class. Suppose that conditions of cost for commodities X and Y in England and France are as shown in Table XXXI.

TABLE XXXI. TABLE OF COMPARATIVE COSTS: CASE I

COUNTRY	COST OF PRODUCTION PER UNIT IN DAYS AND DOLLARS					
	Commodity X		Commodity Y		Comparative cost of Y in per cent of X	
	Days	Dollars	Days	Dollars	Days	Dollars
England...	4	4	2	2	50	50
France....	2	2	4	4	200	200

Under the conditions of cost shown in Table XXXI it will take twice as many days of labor in England to produce one unit of X as it will take to produce one unit of Y, and will cost twice as many dollars. In other words, the cost of production of Y is only 50 per cent of the cost of X. But in France the contrary is true, and it costs twice as many days and twice as many dollars to produce one unit of Y as it costs to produce one unit of X. In other words, cost of production of Y is 200 per cent of the cost of X.

From the purely commercial point of view it will pay producers of Y in England to sell their commodity in France, since they produce at a cost of $2 and sell in a market where the cost, and therefore presumably the price, is $4. Likewise and for the same reason

it will pay producers of X in France to sell their commodity in England. Thus, quite naturally, with such differences in cost trade would spring up to the advantage of the producers and merchants concerned. Such trade would be to the best interests of both countries, and would tend to give both more commodities for consumption than if they did not trade. If any one doubts or denies this, he should be convinced of his error by the following reasoning:

If any gain results from trade, it goes either wholly to England, or wholly to France, or is divided between them. Under the following conditions it would go wholly to England: If one unit of Y, produced in England at a cost of two days' labor, or $2, is exported to France and sold there at $4, the cost of production in France; and if with the $4 the English then buy two units of X at $2 per unit, the cost of production in France, they will get by this trade two units of X which, if produced at home, would cost them eight days of labor, or $8. Thus by this transaction they would save six days in labor, or $6. The six days of labor would then be available for the production of other goods. Similarly, if France should export one unit of X, produced at a cost of two days, or $2, to England, sell it there at the cost of production in England for $4, and with the $4 buy two units of Y, it would get, at an expense of two days of labor, or $2, two units of Y, which, if produced at home, would cost eight days of labor, or $8.

11. **The gain tends to be shared by the two countries.** It is unlikely that in any such case either country would reap the whole gain from the trade for the following reason: English producers of, or dealers in, commodity Y, finding cost of production, and therefore price, in France higher than cost and price in England, would proceed to export this commodity for profit. This would increase the supply of Y in France and would therefore cause a fall in price there in accordance with the principle of diminishing vendibility. Exports from England would, however, continue as long as the French price were above English costs, and therefore eventually the price in France would fall to the level of cost in England, barring transportation charges, which we may omit from consideration in this connection. Similarly, X would be exported from France to England until the English price fell to the level of French costs. Assuming that costs per unit remained the same in both

countries during this development, we should then have the following results:

England would export one unit of Y produced at a cost of two days of labor, or $2, sell it for $2 in France, and with this $2 buy one unit of X, which, if produced at home, would have cost four days of labor, or $4. By this transaction it would gain $2, or save two days of labor. Similarly, France would gain by exporting X to England and importing Y. For reasons to be given below, connected with conditions of demand and cost, the gain might not be thus equally divided. One country might gain more than the other, but both would nevertheless share in the gain.

12. Effect of diverting labor and capital into more productive industries. When English producers of Y undertook to supply, not only the home market, but the French market, the Y industry in England would expand. Likewise, when French producers of X undertook to supply not only the home market, but the English market, the X industry in France would expand. At the same time producers of X in England and of Y in France would be driven out of business by the low-cost foreign imports. Their labor and capital would have to be transferred to some other industry, part of it to the expanding export industries, where it would be required to help to produce the additional supply finding a market abroad. We may call this transfer the diversion of labor and capital from the less productive to the more productive industry in each country. The extent of the gain in both countries may be expressed in numerical terms if we assume that in both England and France 1,000,000 units of each commodity had been produced before trade between the two countries began. In that case total production of both commodities combined in both countries would have amounted to 4,000,000 units. If, now, all the labor and capital employed in England in producing the 1,000,000 units of X were diverted to the production of Y, the production of Y would be increased by 2,000,000 units, or to a total of 3,000,000. Likewise in France, if all the labor and capital were diverted to the production of X, total production of X in France would rise by 2,000,000 units to 3,000,000. Total production in both countries would now be 6,000,000, a gain of 50 per cent. If the gain were divided equally through market operations, each country would have 1,500,000 units of each commodity instead of only 1,000,000 units as before.

13. Comparative costs: Case II. Both countries gain. In the foregoing example the assumption was that England can produce Y at less than the cost of X, while France can produce X at less than the cost of Y. In such cases the gain is clear and unmistakable. Actual examples of this sort can readily be found, such as the production of coffee in Brazil and the production of wheat in the United States. But there may be a gain from international trade when commodity X is produced at higher cost in both countries than commodity Y, a state of affairs which we may refer to as Case II. This may be illustrated as in Table XXXII.

TABLE XXXII. TABLE OF COMPARATIVE COSTS: CASE II [1]

COUNTRY	COST OF PRODUCTION PER UNIT IN DAYS AND DOLLARS					
	Commodity X		Commodity Y		Comparative cost of Y in per cent of X	
	Days	Dollars	Days	Dollars	Days	Dollars
England....	4	4	2	2	50	50
France.....	5	5	1	1	20	20

With costs as indicated in Table XXXII, trade would spring up between England and France, X being exported from England to France and Y being exported from France to England. Since the reasoning follows the same lines as in Case I, we need not go into as full detail here as before. Let us assume that as before trade grows, and exports from both countries continue until the prices of X and Y respectively are the same in England as in France, and equal cost of production in the exporting country, barring cost of transportation. Would, then, both countries gain from the trade?

Let us see. England would export to France one unit of X produced at a cost of four days of labor, or $4, sell it there for $4, or cost of production, and buy with this $4 four units of Y, at $1 per unit, which, if produced at home, would have cost eight days of labor, or $8. This would represent a saving of four days of labor,

[1] The cost figures have been chosen to indicate that on the average labor is equally effective in the two countries. Thus, in England four days of labor plus two days of labor, or six days, produce one unit each of X and Y. In France five days of labor plus one day of labor, or six days, also produce one unit each of X and Y.

or $4. France would export to England four units of Y, produced at a cost of four days of labor, or $4, sell them in England at cost of production, or $4, and with this $4 buy in England one unit of X, which, if produced at home, would have cost five days of labor, or $5. This would represent a saving of one day of labor, or $1. France would gain less from such trade than England because it would be able to buy its imports at only one fifth less than it could produce them, whereas England would buy at half the home cost of production. But both countries would presumably gain.

14. Trade when money wages are higher in one country than in another. The assumption in Case I and Case II has been that in both England and France money wages are the same, commodity prices on the same general level, and real wages therefore the same. This implies that in the two countries labor is equally effective on the average, although not equally effective in producing the same commodity in both countries, and it implies that workmen enjoy the same standard of living in both countries.[1] Suppose, however, that in one country labor received higher money wages than in the other country, would both countries then benefit from the trade, or would the wages of the workmen in the high-wage country be reduced to the level of wages in the low-wage country, and would the standard of living of the workers in the high-wage country thus be reduced?

We have here two distinct cases to consider. First, money wages may be higher in England than in France, not because of greater average effectiveness of labor in production, but because of a generally higher level of prices resulting from the quantity of money and credit. Second, money wages may be higher in England because of greater average effectiveness of labor, and not because of a higher level of prices.

The first case can exist only when trade between the two countries is not free. Assuming that money wages are higher in England than in France, although labor is not more effectively employed — that is, does not produce more units of output per day — then commodity prices must be higher in about the same proportion. For example, if two days of labor produce one ton of coal in both England and France, but wages are $2 a day in the first and $1 a day in the second, then cost of labor per ton of coal produced will be

[1] See footnote on p. 657.

$4 in England and $2 in France. Labor costs directly or indirectly constitute the major part of all costs, particularly for the marginal units produced; therefore total costs, and consequently prices, would be about twice as high in England as in France. If we assume that each commodity in England requires the same quantity of labor as the same commodity requires in France, then prices in England would be uniformly higher than in France. All sorts of portable commodities would then be exported from France to England, and none from England to France. Gold exports would follow from England to France, with the familiar consequences of falling prices in England and rising prices in France. Eventually the same price level would be reached in both, and trade would stop. And with prices in general the price of labor, or money wages, would fall in England and rise in France. We may say that in this case money wages would have fallen in England, the high-wage country, but the standard of living would not have fallen, because the money wages, being reduced only in proportion to commodity prices, would buy as many commodities as before. Indeed one might reason that England, the high-wage country, gained by this process, having exported money good for nothing except to inflate prices and having imported consumable goods. This possible gain would probably, however, have been offset by financial disturbances attending a general fall in prices.

If instead of each commodity requiring about the same quantity of labor in England as in France to produce it, some commodities could be produced more cheaply in England than others, while in France the same comparative advantage did not exist, then we should have to modify the foregoing conclusion. Trade between the two would still tend to bring down the price level in England and raise it in France, but it would at the same time divert labor from the less productive to the more productive industries, so that total physical volume of output would rise in both countries. Wages in England would fall less than prices and wages in France would rise more than prices, both nations would gain, and the standard of living in England as well as in France would be raised.

15. The high-wage as well as the low-wage country gains from trade. Turn now to the more common case — higher wages in one country than in the other resulting from greater effectiveness of

labor. Suppose that in England wages per day are twice as high as in France, because labor is generally more effectively employed in England, and particularly because the least effective labor in England is more effective than the least effective labor in France, so that the marginal vendibility is higher. This may be the result of better natural resources, better management, more capital, or of a better class of workmen in England than in France, or of a combination of these factors. Can such differences in wages persist, or will they be wiped out by international trade? Let us illustrate this case by a modification of Table XXXII, showing wages higher in England than in France

TABLE XXXIII. TABLE OF COMPARATIVE COSTS: CASE III

COUNTRY	COST OF PRODUCTION PER UNIT IN DAYS AND DOLLARS					
	Commodity X		Commodity Y		Comparative cost of Y in per cent of X	
	Days	Dollars	Days	Dollars	Days	Dollars
England....	2	4	1	2	50	50
France.....	5	5	1	1	20	20

Modifying the figures in Table XXXII to indicate wages twice as high and labor twice as effective in England, as before, we get the figures in Table XXXIII. In England every day of labor now represents $2 in costs instead of $1 as before, but cost in dollars of commodity X and Y is left as before because only half as much labor is required per unit. For France all figures are the same as before, each day of labor representing total costs of $1. It will be noted that comparative costs of X and Y are by this change not affected. In England Y still costs in days and dollars 50 per cent of X, and in France still 20 per cent of X. It must follow, therefore, for the same reasons given in connection with Case II, that trade will bring a gain for both countries. Assuming that exports of X from England cause the price of X in France to fall to cost production in England, or $4, and that exports of Y from France cause the price of Y in England to fall to $1, the cost of production in France further trade will bring gains to both countries as follows:

One unit of X produced at a cost of two days of labor, or $4, in England is sold for $4 in France. This $4 pays for four units of Y in France at $1 a unit, which, if produced in England, would cost four days of labor, or $8. England, the high-wage country, thus gets for two days of labor, or $4, what would cost it twice that many days of labor and twice that many dollars to produce herself. Similarly, France sells four units of Y produced at a cost of four days of labor, or $4, to the English for $4, the cost of production in France, and with this $4 buys one unit of X, which, if produced at home, would have cost five days of labor, or $5. Thus both gain.

In Case III, English labor as compared with French labor is equally effective in producing commodity Y. It nevertheless pays England to import the commodity from France. Even if English labor produced Y more effectively than French labor produced Y, it would still pay England to import Y from France if English labor had a greater comparative advantage over French labor in producing X than in producing Y.

But will not the French with their low wages universally undersell the English and force English prices below the cost of production? No; they undersell the English only in those commodities which the English can produce at the least comparative advantage and which it pays them to buy from the French with the prices obtained for those things which the English produce at the greatest comparative advantage. In all cases the reasoning points to the conclusion that trade brings gains in the form of increased production, and that the gains are shared by the two countries, although not in equal proportion.

16. Conclusion; foreign trade advantageous to both countries concerned. We have stated now in a general way the case in favor of free trade between nations. So long as costs in one country for the various commodities produced are not uniformly higher or lower than, or not the same as, costs in another country, the two may reap a gain by trading with each other. Both will tend to benefit, whether or not the general level of prices, or the general level of wages, or the standard of living of the working class is the same in the two countries, and the workers will presumably share in the gain through higher real wages, either through receiving higher money wages than before or through lower prices for commodities bought

with their money wages, or both. Therefore any obstruction to such trade is presumably detrimental to the welfare of both countries, and those who favor such obstructions in the form of protective tariffs, or in any other form, should be called upon to show clearly some offsetting advantage that might accrue from such obstructions.

17. Possible effects of trade on costs in the exporting country. Before turning to a consideration of some arguments in favor of trade obstructions, it seems desirable to consider certain points that may be raised in connection with the foregoing discussion. In addition to certain assumptions expressly made on page 653, we have made certain other assumptions as our discussion proceeded. We assumed that exports of commodities from the low-cost country expanded until prices in the importing country fell to the level of costs in the exporting country, and the low-cost imports drove all domestic producers of the product out of business. Neither of these results need necessarily follow, and in fact neither does usually follow. As trade develops and producers of commodity X find a market at higher prices in a foreign country than at home, their industry expands, and they may, in competition for men and materials to expand their business in order to reap tempting profits, bid up the prices of labor and other producers' goods which they require, thus increasing their costs of production. If this happens, the price at which they will continue to sell in the foreign country will be higher than their old cost of production. This does not invalidate our conclusions concerning the gains from international trade to the country as a whole, nor does it necessarily invalidate our conclusion that wage-earners share in this gain. If expansion in the exporting industry is accompanied by rising money wages, at the same time that prices of various commodities imported are lower than they would be if they were still produced at home, workmen gain by both higher money wages and lower cost of living. It may be assumed, for reasons already given, that the rise in the prices of exported commodities is about the same as the rise in wages, and that the real gain comes to the workmen in the greater quantity of imported articles the higher money wages will buy. If money wages rise in the exporting industry, they necessarily rise also in other industries, for reasons already given — in brief, because all producers compete for the available labor supply.

There is, however, a possibility, apparently overlooked by protective-tariff advocates, that diversion of labor from one industry to another may result in lower wages — both money and real — if the expanding industry operates under conditions of increasing cost because of the necessity of resort to worse natural resources, or because of more intensive use of the natural resources already used. In this case labor may lose, although the country as a whole still gains from international trade. This point can be discussed more conveniently in the following chapter in connection with our discussion of arguments for a protective tariff.[1]

18. A market may be shared by foreign and domestic producers. Imports of commodities at a lower price than the market price in the importing country will not necessarily totally destroy the home industry. Some parts of the domestic supply may be produced at a cost as low as, or lower than, costs in the foreign country from which the imports come. This part of the home supply will continue to be produced in the face of foreign competition. In manufacturing it may be only the least effective proprietors who will be driven out of business.

In agriculture we have for most producers two kinds of costs — the costs of cultivation and marketing, and the cost of the land, or rent. Rent exists as a cost for any particular producer only because the market price is above his cost of cultivation and marketing, particularly if he is a no-profits producer. If market price falls, he will continue to produce if it does not fall below cost of cultivation and marketing. All that need happen here of economic importance is that rent and the price of the better grades of land will fall. These better grades will continue to be cultivated, although the poor land will be abandoned when the market price falls below the cost of cultivation of the wheat, corn, or what not, produced on it. Thus, when American wheat undersold English wheat in the second half of the nineteenth century, when cheap transportation became available, wheat production in England did not cease altogether. The lowest-cost bushels continued to be produced, because the cost of cultivation and marketing per bushel on the best English land was still below the import price.

In such cases there is still a gain for both countries, but only part and not all of the labor devoted to the production of the commodity

[1] See Chapter XXXV, Section II.

being imported is diverted to a more productive industry. In England labor devoted to cultivation of the best land up to the point of diminishing returns is probably quite as effectively employed as if it were turned to the production of exportable goods.

19. Effect of an insistent demand for imported commodities. In the foregoing discussion it has not been shown according to what principles the gain arising from trade would be divided between the two nations trading. It is generally held that of two countries trading, that one gains the most advantage whose commodities are in the most insistent demand by the other. It is somewhat like the case of one man swapping his pigs for another man's lambs. If the one wanted more lambs than the other wanted pigs, he would perhaps not get an advantageous trade. But the matter is not so simple as that, involving, as it does, the quantity theory of money and principles of foreign exchange.

To bring out the effect of differences in intensity of desire for the exports of the two countries concerned upon the division of the advantage from their trade, let us assume two countries having about the same level of prices, and about the same level of money wages, or money incomes. Then let us assume that they begin to trade with each other. England, let us say, exports coal to France because it can produce coal more cheaply than France, and imports wheat from France because France can produce wheat more cheaply. But the demand for wheat in England is inelastic; a little additional wheat thrown on the market causes a sharp fall in price, and the price in England will soon fall to the level of cost in France, so that not a great quantity will be sold. But the demand for coal may be elastic. Manufacturing industries may be tempted to expand substantially by using somewhat cheaper coal and people may be induced to burn more coal in their houses. Considerable quantities of coal could then be sold in France before price fell to cost of production in England.

Small exports of wheat to England would not pay for the large exports of coal to France. Gold would flow from France to England to settle the balance of trade. This would lower the general level of prices in France, including the price and cost of wheat, and raise the general level of prices and costs in England, increasing the price and cost of coal. If France now got further imports of coal,

she would have to pay a higher price, and England might now get further imports of wheat at a lower price. If the unfavorable balance of trade still continued because the French still bought more coal than the English bought wheat, prices and costs would fall further in France and rise further in England, until imports and exports balanced, and gold ceased to flow. Thereafter coal would continue to be exported to France at a somewhat higher price and wheat would continue to be exported to England at a somewhat lower price than if the demand for coal had been no greater in France than the demand for wheat in England.

Any change in economic conditions in the two countries which thereafter might increase the demand for English products in France relatively to the demand for French products in England would cause a further rise in English prices and a further fall in French prices, thus increasing further England's share of the gain from their trade.

It should be noted by all means that the imports of gold into England alone are of no particular benefit unless the English take advantage of the relatively low prices in France to buy their wheat. In more general terms it may be said that when at any given time conditions of supply and demand, of cost and market price, are such in two countries that the total value of the exports of the first to the second exceeds the total value of imports of the first from the second, the first country tends to gain most from the trade between them. Under these circumstances gold flows into the country with the excess of exports and out of the other. Prices rise in the one and fall in the other, until their trade balances. Thereafter the first will sell its exports at higher prices and buy its imports at lower prices than if no imports of gold had occurred. This statement is not broad enough to cover all the facts since each country tends to trade not merely with one other country but with many others. Nevertheless it brings out with sufficient clarity the principles involved.

The reasoning of this section relating to the relative gain derived by two nations from trade between them is subject to the qualification "other things being equal." Conditions of comparative costs, such as discussed in Section 13 of this chapter and illustrated in Table XXXII, may permit the one country to reap a greater gain than the other.

EXERCISES

1. If two countries both use the gold dollar as their standard of value and no barriers to trade exist between them, can prices of all commodities be higher in the one than in the other? Can prices of some commodities be higher in the first and prices of other commodities higher in the second? Why, or why not?
2. In the United States wheat is cheaper than in Germany, but pocket knives are dearer. Explain.
3. England and the United States trade extensively with each other. Why? Do both countries gain from this trade? Why, or why not?
4. With free trade between two countries, can wages in the one be maintained at a higher level than in the other? Why, or why not?
5. It is held by economists that of two countries trading, that one gains most from the trade whose commodities are in the most insistent demand by the other. Explain.

For references for this chapter see end of chapter XXXV.

CHAPTER XXXV

PROTECTION AND FREE TRADE

1. Terms defined: free trade, import taxes or duties, protective tariff. By free trade is meant the absence of those restrictions on imports and exports which are designed primarily for the purpose of obstructing trade between nations. Under modern conditions such restrictions for the most part have taken the form of taxes levied on imports, for the purpose either of giving the domestic producer exclusive possession of the home market or of permitting him to charge a price higher than the cost of production in the exporting country plus costs of transportation. A tax on any particular import is called an "import tax" or "import duty." When a country levies such duties on a considerable variety of imports in order to protect its producers from foreign competition, it is said to have a "protective tariff." Import taxes or duties may be levied for purposes other than protection to home industries, the most important of these purposes being to raise revenue for the Government.

2. Import duties involve cost; a counteracting gain must be shown to justify them. Whatever the purpose of import duties may be, they tend to restrict the free flow of goods from one country to another and deprive both the importing and the exporting countries of all or part of the advantage they might otherwise gain from international trade. As shown in the preceding chapter, when trade is free each country exports those commodities in the production of which it has a comparative advantage and imports those in the production of which it has a comparative disadvantage. In the case of the former, the domestic price will be lower than the price in the foreign country; with the latter, the domestic price will be higher than in the foreign country. Thus comparative market prices in the two countries concerned control the direction of imports and exports to the best advantage of both countries. Since an import duty is usually added in whole or in part to the cost of production in the foreign country plus the cost of transportation to the importing country, to give the price at which the commodity may be sold to buyers in the importing country, it may, by thus increasing the price of the

imported article, diminish or destroy the demand for it, and thus diminish or destroy the trade of advantage to both countries. Here, then, is a fundamental argument based on fundamental principles opposed to all restrictions on international trade. Whoever would impose such restrictions for any purpose whatsoever should be called upon to show conclusively that by so doing he will gain a counteracting advantage which will offset or more than offset the loss that his restrictive policy involves.

Arguments in favor of taxing imports are not lacking in quantity, whatever one may think of their quality. The reasons given for taxing imports include the following, most of which, but not all, are protective-tariff arguments:

(1) To diversify industry and to make a nation more self-sufficing. In particular, to stimulate manufacturing industries in new countries, agricultural industries in thickly populated industrial countries, and war-material-producing industries in all countries.
(2) To raise wages by keeping out imported goods produced by cheap labor.
(3) To raise wages by increasing the demand for labor relatively to the demand for other factors of production.
(4) To afford additional employment for labor by protecting new industries.
(5) To protect infant industries temporarily.
(6) To maintain high wages and prosperity.
(7) To provide a home market for farm products by protecting and developing manufacturing industries.
(8) To bring money into the country by restricting imports.
(9) To gain a greater advantage from foreign trade by raising the domestic price level above the price level in foreign countries.
(10) To prevent foreign producers from dumping their surplus products on our market at less than cost to ruin our producers.
(11) To retaliate against other countries which tax our exports.
(12) To afford a basis for bargaining with other countries for reciprocal reduction of import duties.
(13) To raise revenue for the support of the Government.

Of this array of arguments, some are old and some are new; some are simple and some are complicated; some are used only by scholars and some only by politicians; some are good and some are bad. Some mutually support, and others mutually contradict, one another. Let us consider them one by one.

3. Comparative costs in the United States and England in the

time of Hamilton. In relatively sparsely populated countries with rich natural resources, such as the United States at the time when Alexander Hamilton was Secretary of the Treasury, there is so much good land that, to supply the people with most or all of the agricultural products they need from their own land, the poor land need not be used at all and the good land need not be cultivated far, if at all, beyond the point of diminishing returns. The cost of producing the bushels of wheat or corn or pounds of meat or tobacco under the least advantageous conditions under which cultivation of the soil is carried on is relatively small. Per day of labor and unit of man-made goods applied to agricultural pursuits, the output is relatively large. Under such conditions the farmer using hired labor can either pay high wages or produce at low money cost per unit.

But in a relatively thickly populated country with a limited amount of good land, such as England was even at that early time, to supply the people with most or all of the agricultural products they require from their own land requires that even the poor land be used and the good land cultivated far beyond the point of diminishing returns. The cost of producing the bushels of wheat or pounds of meat under the least advantageous conditions under which cultivation is carried on is relatively great. Per day of labor and unit of man-made goods applied to agricultural pursuits, the output is relatively small. Under such circumstances, the farmer using hired labor must either pay low money wages or produce at high money cost per unit.

Per day of labor the American farmer could produce much more wheat or meat or other farm products than the English farmer, particularly the English farmer employing labor on the poorest land in cultivation or the additional labor to produce a few additional bushels or pounds by cultivating the better land far beyond the point of diminishing returns.

In many manufacturing industries, however, the American producer did not have such an advantage. In many cases his labor was not only not more effectively employed than the English manufacturer's labor, but was less effectively employed. Now, according to the principles laid down in the preceding chapter, when one country can produce some articles more effectively than another country, but does not have the same comparative advantage in pro-

ducing other articles, it will pay it to specialize in producing those articles in which it has the greatest comparative advantage. With free trade between the two countries wages in the less effective industries will tend to be depressed and in the more effective industries will tend to rise, and labor and capital will flow from the relatively less effective into the relatively more effective industry.

4. The United States had a comparative advantage in producing agricultural products. Quite naturally, then, agriculture flourished in the United States, and we exported wheat, tobacco, meat, cotton, and other farm products to England and other comparatively thickly populated countries. Quite naturally, too, we found that they could undersell our own manufacturers in the case of such commodities as woolen and cotton cloth, cutlery, and other small goods, easily transported across the sea, in the production of which their labor was as effective as, or more effective than, our own. They undersold our home producers, not merely because these had to pay higher wages, but because the high wages were not accompanied by a corresponding greater effectiveness in production. Our agriculturists also paid higher wages than English agriculturists, but they were not undersold by the low-wage English producers, because the American labor turned out more units of product per day of labor. It was the relatively great output per day of labor that led our agriculturists, in competing for the available labor supply, to bid up wages above the level of agricultural wages and wages in general in the thickly populated European countries, and above the level that many would-be American manufacturers could afford to pay and compete successfully in the sale of the product with the low-cost labor in Europe.

Incidentally, it should be noted that the typical free American agricultural worker in the early days was not a hired laborer, but an independent farmer. This, however, does not affect the argument. As an independent cultivator of the soil he could earn more by his great output of products than manufacturers could pay him and compete with European producers. We are still concerned with relatively effective labor in agriculture and relatively ineffective labor in manufacture. The difficulty of the American manufacturer was increased by the fact that he possibly had to offer wages higher in some cases than the independent farmer could earn work-

ing for himself, because the farmer preferred being his own boss to being bossed by another, at the same price, and because as an independent farmer he could hope to reap a gain from the increasing value of his land.

5. Hamilton's report on Manufactures; Protective Tariff Policy advocated. Such having been the situation in the United States as compared with England and other European countries early in our national history, it was to be expected that those persons who, either for selfish reasons or in the interest of the general welfare desired to encourage expansion of manufacturing industries in the United States, would urge that taxes be levied on imports of manufactured goods. Among those who did desire the development of manufacturing by such means in the interest of the public welfare was Alexander Hamilton. In his famous *Report on Manufactures*, in 1791, in which he urged a protective-tariff policy, he stated that opponents of a protective tariff pointed out three reasons for doubting the practicability of success in manufacturing, namely, scarcity of hands, dearness of labor, and want of capital; and he admitted that hands were scarce and labor dear. He also pointed out that success was hampered in some cases by lack of skilled hands. But he did not doubt that manufactures could succeed, and pointed out that there were already large varieties of manufactured goods produced in the United States, including bar and sheet iron and many other iron products, ships, cabinet wares, sailcloth, twine, bricks, liquors, paper of various kinds, hats, sugar, copper and tinware, carriages of all kinds, starch, lampblack, and gunpowder.

6. Early arguments in favor of protection; diversification of industry argument. Among the early arguments in support of protective-tariff duties were the diversification of industry argument, the higher wages argument, and the additional employment for labor argument, and somewhat later the infant industry argument. These were the arguments that fitted the conditions of the times.

The diversification of industry argument may take various forms and is closely related to various other arguments. It is held that it is undesirable from a social point of view for a country to become too highly specialized, either in the direction of agricultural pursuits or in the direction of manufacturing pursuits. It is better to have a great diversification of industries which will afford ample scope for

the development of all the talents of the people. An agricultural country may be a country of yokels, crude and uncultured. Furthermore, it is in constant danger of having its supply of necessary manufactured imports cut off by wars among the countries upon which it depends for supplies or by itself becoming involved in war with those countries. Even worse, if it has depended upon some particular country for its military supplies and cannot produce such supplies itself, and then becomes involved in war with that country, it is helpless. On the other hand, the highly industrialized country may fall into a worse plight. Dependent for food supplies for its dense population upon imports from other countries, it is in constant danger of ruin. This may come about suddenly by a marine blockade, resulting in actual wholesale starvation, as might have happened in the case of England had the German submarine campaign been just a bit more effective, and as actually happened to some extent in the case of Germany during the war and during the time of the Peace Conference before the Allied blockade was lifted. It may come about more gradually when the countries which have been the source of cheap food supplies themselves become thickly populated and produce no more food for export to the older countries, a process that seems to be taking place even now in the case of the United States, which once exported a large percentage of its food products, but whose food exports are growing smaller and may eventually cease.

The diversification of industry argument is closely related to the additional employment for labor argument, and the home market argument, but this phase of it can be treated more conveniently when we take up those arguments. Here let us consider merely the validity of the argument as just stated as applied to early conditions in the United States. Here we have two things to consider: first, Is diversification of industries desirable? and, second, Is protection to manufactures necessary to achieve diversification under such circumstances?

7. Diversification is desirable, but self-sufficiency is impossible. Undoubtedly some diversification of industry is desirable. Farming communities with their scattered population are less likely to be centers of refinement and culture than thickly populated industrial centers, although as an offset it should be added that they are also

less likely to be centers of vice and crime and unwholesome slum conditions. Undoubtedly, too, there is danger in being dependent upon foreign countries for necessary supplies either in war or in peace. But there are limits to all things. Absolute self-sufficiency is not only not desirable, but it is impossible. For climatic reasons some countries can produce some things more effectively than others and some things which others may not be able to produce at all. The people of various countries also have characteristic traits which fit them better for some pursuits than for others, traits that apparently have nothing to do with skill gained by experience which might be developed by protective tariffs within any country. Some trade among nations will always be of advantage as one form of the division of labor. Even a country with as great and varied natural resources as the United States cannot produce everything required for the greatest possible welfare of its people; much less can smaller countries such as England, Italy, or Belgium. To some extent all must be dependent upon others, even for military supplies, since under conditions of modern warfare practically all commodities become directly or indirectly military supplies. The ideal should be abolition of war, not military security through self-sufficiency. The first is at least as easily attainable as the second, and far more desirable.

Granting that diversification in some degree short of self-sufficiency and economic isolation is desirable, is it to be achieved only by a protective tariff on manufactures in a country with rich natural resources and relatively sparse population such as was the United States in early years, and as it still is? The answer is no. Alexander Hamilton himself, one of the most able advocates of protection, used as an argument favoring the success of his policy of protection the wide diversity of manufactures that had already developed before 1791. Without a protective tariff we should have developed in the United States a rich diversity of industries.

8. Diversification not dependent on a protective tariff. In addition to the agricultural industries, such as the wheat, corn, cotton, cattle, and hog industries, we should have developed a great variety of manufacturing industries. These would have included industries in which our labor is effectively employed because of rich natural resources giving us relatively cheap raw materials, particu-

larly when these raw materials are bulky in nature and hard to transport to distant manufacturing plants; industries whose product is bulky and transportable only at high cost relatively to cost of manufacture; industries whose product is highly perishable, and therefore not transportable to distant places; industries devoted to products made particularly to suit the needs of our people by producers within our country understanding those needs, and not produced elsewhere. Here we have a rich diversity in itself for a country such as the United States. Under these various heads would come the manufacture of iron and steel products of the more bulky or simple sorts; other metallic products of copper, lead, and zinc; a great variety of wood manufactures, from ships and wagons to furniture and clothespins; petroleum products of various kinds, including lubricating oil, kerosene, and gasoline; brick, tile, and pottery products; packing-house products of all kinds; flour and other manufactures from grain, including whiskey and beer; dairy products, including butter, cheese, and condensed milk; candy and bakery products of all kinds; and, as the phrase goes, other articles too numerous to mention. Here, one might think, is diversification enough to afford ample scope for the application of every talent of a people. But the protective tariff advocates, like Oliver Twist, wanted more. They wanted also woolen and cotton cloth and silk manufactures, small hardware and cutlery, and other things of that sort, of great value in small bulk, in which direct labor cost is a large part of total cost, and in the production of which possession of rich natural resources is of no great advantage and cheap labor is. They wanted to produce, in short, those things in the United States in the production of which our country was at a comparative disadvantage and therefore had higher money costs of production than European countries.

9. Non-transportable goods and personal service not subject to foreign competition. In connection with diversification of industry it should be noted that every country must produce a great variety of non-transportable goods — goods which must be produced in the country that uses them and which cannot be imported regardless of lower money costs in other countries. The extremely important construction, transportation, and public utility industries fall in this group. We cannot import from foreign countries our railroads,

our gas, electric light and power, and water plants, and our houses, stores, and factory buildings. We may import some of the materials used in constructing them, but the actual labor of construction and operation must be performed here, and in these industries we employ in the United States several million men.

All kinds of personal and professional service we must generally buy at home, although it might be bought cheaper in foreign countries. Manifestly, our barbers, doctors, lawyers, and beauty specialists do not require a protective tariff to afford them scope for their varied talents, nor to prevent an influx of low-cost foreign haircuts, operations, legal arguments, or permanent waves. Here, too, may be named the bankers, brokers, insurance agents, and other persons connected with financial institutions.

That greater diversification than we should naturally have had without protection was necessary for our welfare is extremely doubtful. The diversification argument is therefore of doubtful validity as applied to economic conditions in the United States either now or at any time in the past.

10. Fallacy of the ordinary argument that the tariff raises wages. The manufacturing industries which needed protection in the United States were those having a comparative disadvantage. They could not meet the competition of the low-cost imported goods and at the same time pay the current rate of wages in the United States — the wages paid by the dominating export industries in which labor was more effectively employed. The protective tariff, by increasing the price of the imported article, or by excluding the article, permitted these industries to sell at a higher price and thereby permitted them to pay higher wages. It thus permitted them to retain for themselves or to divert to themselves labor which otherwise would have been employed either in the exporting industries or in industries not suffering from competition with low-cost imports, by paying wages as high as these other industries. To the shallow thinker this may have seemed to indicate that a protective tariff raised the level of wages. But on the basis of the facts here presented it may be said to have lowered wages. It raised the level of money wages in the ineffective industry to the level already paid in the effective industries, but no higher. The workers employed in the protected industries, if not diverted by the

operation of the tariff, would have been employed at equally high money wages in other industries. On the whole, then, money wages were not raised. But the tariff increased the cost of living to the workmen and other consumers by raising the prices of the protected products above their former level. The real wages — the purchasing power of the money wages — of the American workmen were therefore diminished and not increased.

11. A sounder but more complicated argument based on marginal vendibility of labor. In the preceding chapter, we pointed out a possibility that under certain conditions free trade might depress wages in a country, or, which comes to the same thing, a protective tariff might raise wages. These conditions exist when the country concerned has great natural resources relatively to population, and when the countries with which it trades have great populations relatively to natural resources. In a general way we may say that, other things being equal, production of commodities per capita will be greatest in that country which has the greatest amount of natural resources per capita, because in that country the use of these natural resources need not be carried so far beyond the point of diminishing returns as in others. In a general way we may say also that the proportion of the total output of industry that goes to labor will be larger in the country of great natural resources than in the country of small natural resources, assuming other things, such as the amount of capital and managing ability per capita, to be the same in the two countries compared, because the marginal productivity and the marginal vendibility of labor will be greater and the rents received by the landlords will be smaller in the country which does not carry cultivation beyond the point of diminishing returns or which carries cultivation least beyond the point of diminishing returns. For two reasons, then, real wages may be expected to be higher in the country with the greatest amount of natural resources per capita.

But two countries that have no trade barriers between them and have cheap transportation facilities tend to become an economic unit regardless of their political separation. In effect their resources in men, capital, management, and land are pooled. If one country has three times as much land per capita as the other, this fact will not cause its land to be less intensively cultivated, but will merely

cause a larger proportion of its people to be drawn into employment on the land, until the land in both countries is cultivated with equal intensity — in the one perhaps three fourths of the workers will be employed on the land and in the other only one fourth. Rents will tend to rise to equal heights and marginal productivity of labor and wages to become equalized in both countries. When the two countries do thus in effect become an economic unit, wages will be lower in the country of relatively rich natural resources than if the two countries had not been fused industrially, since the amount of natural resources per capita in the two combined is less than in the one set off by itself. Concretely, if in the one population is 50 per square mile of good natural resources, and in the other 150 per square mile, both having the same area of natural resources, any economist would say offhand that wages would be higher in the first than in the second. But merge the two, and let them become one with a population of 100 per square mile of good natural resources. Wages would then be lower in the merged unit than in the original separate country with a population of 50 per square mile, because labor would have become relatively more abundant than before compared with natural resources.

It is obvious that the high wages in the thinly populated country would be lowered by heavy immigration from the thickly populated country. But essentially the same result may follow if the manufactured products of the labor in the thickly populated country are exported to the other country and sold there below the cost of manufactures in the high-wage country. In effect this increases the supply of labor marketed in that country just as truly as if the labor itself had been imported and used in the importing country. The familiar diversion of labor from manufacture to agriculture in the country of rich natural resources, follows, which is held to be desirable by free traders because it represents a diversion from less productive to more productive industries. But this diversion increases necessarily the intensity of cultivation of agricultural land, and lowers marginal productivity of labor, and presumably wages. Labor loses. Landlords gain in higher rents. In the thickly populated country with which it trades the opposite is true. Marginal productivity of labor is increased. Wages rise. Rents fall.

If economic fusion, then, tends to lower the wages of the country

with great natural resources, a protective tariff that prevents such fusion tends to maintain the wages in that country at a higher level by drawing part of the working population into manufacturing industries where they may be employed, not subject to the law of diminishing returns, but rather subject to the law of increasing returns, and by preventing the cultivation of the soil from being carried so far beyond the point of diminishing returns as it might otherwise be. To achieve this purpose, however, the protective tariff would need to be accompanied by severe restrictions on immigration. It is futile to protect the native worker from competition with the imported product of foreign labor unless we protect him at the same time from competition with the product of imported foreign labor.

This in no way invalidates the conclusion reached in the preceding chapter that international trade results in a net gain to both countries concerned, but it indicates that the country with scant natural resources has the most to gain, and it indicates at least the possibility of maintaining higher wages by means of a protective tariff in countries blessed with natural resources larger per capita than those of other countries. Usually it is maintained that a country with greater natural resources than others is bound to have higher wages in any event, other things being equal, and usually it does have, but with free trade and cheap transportation it would not necessarily have higher wages than the countries with which it traded. This form of the higher wages argument has been neglected by protectionists because it is not easily grasped by economic illiterates.[1]

12. Fallacy of additional employment for labor argument. The argument that a protective tariff on manufactures affords additional employment for labor in a country is based on the assumption that workmen are superabundant and unemployed. But this argument runs contrary to the argument that the protected industry must be protected in order to pay higher wages. Workmen who are unemployed need not be paid high wages, as a rule, to be induced to labor. It is only men who already have good jobs who can be induced to work in factories only by offers of high wages. It was a common complaint in the early history of the United States that hands were scarce. A variation of this argument was that the development

[1] For a somewhat similar argument the reader may see Carver's *Principles of National Economy*, Chapter XXXII.

of manufactures would afford employment for women and children. But women and children, like men, were already largely employed, and even had they not been, it is doubtful that a tariff would have been required to draw them into factories. In fact, unemployment always exists in all countries, and is the result of other causes than the lack of a few industries that might be added to the national roster by means of a protective tariff. About all that can be said for a tariff in this connection is that it affords more employment for labor in the less effective industries and less employment in the more effective industries. The number of employed remains about the same — and includes all those able and willing to work, except a certain proportion who fall out of employment temporarily from time to time through fluctuations in the demand and supply of labor and commodities.

13. Weakness of the home market argument. The home market argument was developed to gain the support of the farmers for the protectionist policy. It is plain that a farmer did not need to be very keen-minded to observe that a tariff on manufactures which raised the price of the commodities he consumed and made it more difficult for him to retain any hired hands did not obviously benefit him. But if any doubted the advantage of protection they were assured that the growth of manufactures in the United States gave them a home market for their products. There was enough truth in this argument to make it seem quite plausible. In the first place, not only hired hands were drawn into factory employment, but some independent farmers found it more desirable to live in town and work in factories than to continue farming. Thus the total output of farm products in the country was somewhat diminished, and those who continued to farm not only had less competition in the sale of their products, but did indeed find a home market for larger quantities than they might have found without the tariff.

Less obvious were the results overseas. English producers and other European producers finding the market for their products cut down in this country could buy less from us. Furthermore, some workmen who would otherwise have been employed in factories in other lands were diverted to agricultural pursuits and thereby helped to increase agricultural production abroad. Incidentally, we may remark that this diversion was partly the result of our

tariff's limiting their market for manufactured goods and partly the result of their tariffs' protecting their agricultural industries from our low-cost products. To offset the larger home market there was consequently a smaller foreign market. And for the chief money crops of the American farmer the total world demand, and not merely the home demand, determines the market price.

It was argued that the home market is a safer market because it cannot be suddenly destroyed by war or by tariff legislation in foreign countries, and there is some truth in this contention. But it is also true that a narrow market is less stable than a wide market. Moreover, that tariff legislation in foreign countries is bad is not a good argument in favor of a protective tariff in general. With a market for farm products limited to one country an unusually heavy crop due to a favorable season may easily glut the market and force prices ruinously low. But with a world market available a glutted market is unlikely, because a superabundant harvest in one country is usually offset in large part by a scarcity in some other country, so the world supply and the world price remain comparatively stable. It is true that we may have a protective tariff to foster a home market and still sell our surplus abroad, and so we have done. But protective tariffs in one country breed protective tariffs in others, and closing our markets to foreign goods tends automatically to close other markets to our goods. It should be noted here, too, that the argument in Section 11 leads to the conclusion that free trade is beneficial to the landowner in a country of rich agricultural resources because it tends to encourage cultivation of the soil and to bring higher rents.

14. Infant industry argument easily overrated. The infant industry argument is a better argument than any presented up to this point in this discussion except the complicated one advanced in Section 11. This argument holds that manufactures need protection in a new country, such as the United States, from competition with the manufactures of older countries such as England, not because of any inherent characteristics of the former, but because the industries in the old countries have the advantage of an early start. They have experienced managers, skilled workers, good machines, and all the advantages in selling of a going concern. In the new country these things are lacking, but in time they may be

developed. All that is necessary is a temporary period of protection — perhaps twenty or thirty years of protective tariff duties. Kept alive thus by artificial aid during the weakness of their infancy, the young industries will wax big and strong. Their managers will become experienced, their workers skillful, their machines good, and they will have all the advantages of a going concern. They will be able to stand on their own feet and compete with foreigners throughout the world. There is truth in this argument, and some of our manufacturing industries, requiring protection at first, have grown strong enough to compete on even terms with industries in older countries. But too much may easily be claimed for the argument. Not every manufacturing industry in the United States required protection at the beginning, and not every one that did require it, and has apparently grown big and strong, would, if put to the test, now be able to stand on its own feet and survive without protection. Many of our protected industries which one might think ought now to be mature, being more than one hundred years old, are nothing but big babies, clinging desperately to the skirts of their protective tariff mother, and wailing at the very thought of walking out in the big world alone.

15. The anti-dumping argument limited in its application. Sometimes manufacturers in one country, who are producing more than their domestic market will absorb at the price they ask, sell their surplus output in some foreign country at less than cost of production and at less than the price received at home. This process is called "dumping." It may have no other purpose than to dispose of the surplus abroad in order to maintain the existing price at home. But it may also be practiced in order to ruin competitors in the foreign countries. It can be practiced to good advantage only when the producers have a domestic monopoly and are protected by a tariff which prevents the exported commodity from being sent back to undersell them in their home market. If a German monopolist, for instance, could, by withholding ten per cent of his output from the German market, obtain a price twenty per cent higher than otherwise, he could afford to give the ten per cent away in a foreign country rather than throw it on his own market, and if he could get as much as fifty per cent of the domestic price for it, he would be considerably ahead. And it might pay him to produce this extra

ten per cent even at that price, when he takes into consideration the matter of indirect costs, which do not vary whether he runs his plant at capacity or not. Unless the producer has a monopoly it will do him little good to withhold part of his output from the domestic market, since, if he does so, his competitors will be able to increase their sales at his expense. Unless he has a tariff to protect him, his product may be reimported if he sells it abroad at a price far enough below the domestic price to cover costs of transportation.

If the dumping were persistent and steady, it would be to the advantage of the country in which it was done, since the people would then be getting a commodity at less than cost. It would be just as foolish for us to object to such dumping as to complain at having sunshine and rain dumped on our country to the detriment of our electric light and coal industry and the farmers of the irrigated districts. But when the dumping is intermittent, it may demoralize and ruin our industries, whether or not that be the purpose of the dumper. Against such dumping a protective tariff seems justifiable. Dumping of that sort may represent price discrimination and unfair competition and may be designed to ruin a competitor by underselling him until he fails, and thereafter to take advantage of the situation to raise prices to a monopolistic level. American producers who attempt such tactics to ruin their American competitors are punishable under the Sherman Anti-Trust Act and the Clayton Act, as described in an earlier chapter. We cannot hale into our courts manufacturers of foreign countries, but in retaliation for their discriminatory practices we may subject them to discriminating import duties.

16. Import taxes as instruments of retaliation and bases for negotiations. Import taxes have often been advocated as justifiable and desirable instruments of retaliation. If other people tax our exports, then we will tax theirs. Thus, by giving tit for tat, we may discourage other commercial countries desirous of an expanding foreign trade from levying duties on our goods. Furthermore, if we do impose such taxes, then we have a strategic position from which to negotiate with other countries for reciprocity — for reciprocal reduction in import taxes. A free-trade country has nothing with which to bargain when it seeks more favorable trade relations with other countries. Germany may agree to let our

automobiles in free of duty provided we let her chemicals in free of duty. But if some other country, England, for example, already lets German chemicals in free, then she has nothing to offer Germany in return for a concession. Doubtless something can be said in favor of tariffs from this point of view. But the argument cuts both ways. It is one of the weaknesses of a protective tariff that it does breed retaliation. And if one country imposes a tariff as a basis for negotiation, there is nothing to prevent the other from imposing a higher one as its basis for negotiation.

17. The favorable balance of trade argument. A common argument, very old, but ever young, is that import duties are a good thing because they restrict imports and thus help to bring about a favorable balance of trade leading to imports of gold. In short, they bring money into the country. That import taxes tend to bring money into the country is true enough. They tend, by raising prices of the imported goods by the amount of the duty, to diminish the demand for them, and this does bring a favorable balance of trade and possibly gold imports. But those gold imports are a doubtful blessing. Only under certain circumstances are they desirable.

If a country for some reason has an insufficient supply of gold to maintain a sound basis for its monetary system, it may be desirable to encourage gold imports by this method. This may have been the case in the early history of England and some other countries, and it may be the case when a country has resorted to the issue of paper money and has thus expelled its gold and has otherwise demoralized its industrial organization. In that case an artificial restriction of imports may speedily bring in enough gold to permit resumption of the gold standard. But these are exceptional cases. Once the country has enough gold to maintain the gold standard and has its prices quoted in gold, there is little reason to resort to further restriction of imports to maintain the gold supply. If its prices are below the world level, the gold imports will take care of themselves. If its prices on a gold basis are above the world level, it already has more than enough gold for its needs.

18. A possible gain pointed out by Professor Taussig. As Professor Taussig points out, there is one way in which, at least theoretically, a country can gain by taxing imports and thus bringing about

imports of gold. The reasoning is the same as that employed to show why that nation gains most from international trade for whose exports there is the most insistent demand in other countries. The import taxes diminish the demand for imports by raising the price of the imported articles, and, as already pointed out, thus tend to unsettle the established balance of trade and bring about gold imports. The gold imports raise the price level in the gold-importing country and lower the price level in the gold-exporting country. Eventually the higher prices here and the lower prices there bring about a new equilibrium of imports and exports. But thereafter the country that imported the gold will sell its exports on the basis of the higher price level and cost level that prevail in it, and will buy its imports on the basis of the lower price level and cost level that prevail in the other countries. It should be noted that the gain here consists not in the gold imports but in the advantageous conditions of purchase and sale that result from the gold imports. Furthermore, the gain thus realized is not net gain. There are two offsets. First, the country must export some consumable goods for the gold, which is useless except for the purpose of raising prices. Second, some labor and capital are diverted into the less productive industries. Moreover, other countries may retaliate by levying import taxes on this country's exports. If so, the gain may be entirely wiped out, and then both countries will suffer the net loss that comes from diverting labor from the relatively more productive into the relatively less productive industries.

19. A tariff for revenue only. Import taxes may be imposed primarily for revenue rather than for protection to home industries. But a tariff for revenue only may have exactly the same effect as a tariff for protection only, unless discrimination is used in choosing the imports to be taxed, and in fixing the rate. A tax on coffee imported into the United States would afford revenue only, and not incidentally protection, because coffee is not produced in the United States, and probably would not be produced even if we taxed the imported coffee at a very high rate. But a tax on sugar does encourage the production of both cane and beet sugar. A light import tax on tea would bring revenue only, and not protection, because there would be no industry to be protected. But a very heavy tax on tea, although ostensibly levied for revenue only, might so discourage im-

portation as to bring in very little revenue and encourage a tea-growing industry to develop under its protection.

On the other hand, a tariff designed for protection may yield more revenue than protection if it is very low, as a ten per cent duty on woolen cloth; woolen cloth being produced at so much lower cost in England than in the United States that imports would be but little diminished by a ten per cent tax.

Import taxes can be levied to yield revenue only and not incidentally protection as well, if they are levied on imports of commodities that will not be produced within the country after the tax is imposed. They can also be made to yield revenue only, even if the commodities are produced within the country, if a production tax is levied just equal to the import tax. Before the World War, England had had for many years import taxes levied on these two principles.

Import taxes can be made to yield both revenue and protection by being made moderately high, so that the home producer is enabled to sell his product at a higher price than before, but not so high as to exclude imports altogether. Obviously, if the tax is prohibitively high and no imports enter, there is no tax paid and no revenue yielded. Many of our import duties are levied on this principle of protecting but not excluding, and there is a tariff policy advocated by some which would "equalize cost of production at home and abroad" by fixing the import tax just so high that the foreign producers' costs of production and transportation to this country plus the tax would just equal our domestic producers' cost of production. This may seem quite simple and desirable as a method of protecting home producers from ruinous foreign competition, while at the same time giving the American consumer protection from the extortionately high domestic prices that might result from absolute exclusion of foreign products and from combinations in restraint of competition by domestic producers. But when one stops to consider that costs may vary widely both among domestic producers and among foreign producers, the import tax that will equalize cost of foreign and domestic producers becomes a rather uncertain factor. Shall the duty be measured by the difference between the cost of the lowest-cost foreign producer and of the highest-cost domestic producer, or between the cost of the high-

est-cost foreign producer and of the lowest-cost domestic producer, or by some other difference in cost? If we can decide what difference to select as the basis of the tax to be imposed, how shall we find what the various costs are? Foreign producers have shown a decided reluctance to open their cost accounts to American investigators who may use them as a basis of duties discriminating against the foreign producers' products, as investigators sent abroad by the United States Tariff Commission may testify.

Import duties may be made to yield only protection and no revenue by being made so high that no imports can profitably be made.

20. Calculating money costs of import duties. The cost of import duties to the country that imposes them may be roughly calculated. If the duty is levied on articles not produced at home and is moderate in amount, the article will continue to be imported and the consumer will pay a price higher than before by about the amount of the duty, and will thus indirectly pay the tax. The country then neither gains nor loses. There is a possibility, sometimes realized, that the foreign seller will absorb part of the tax by offering his commodity at a lower price if the tax plus the former price causes a decline in demand. In that case, the Government collects more in the way of revenue than its people pay in the way of a tax, and the country as a whole gains — it has in effect been able to make the foreigner pay part of the tax. Similar results follow if the Government levies an internal production tax equal to the import tax, in cases where the commodity is produced at home as well as abroad.

If the Government levies a tax that protects domestic producers, but still permits some imports, it thereby tends to raise the price to the consumers on both the quantity imported and the quantity produced at home, but it collects the tax only on imports. The consumers are thus taxed far more than the Government collects in revenue. If the domestic producers gain this difference, it may appear that the country as a whole — including Government, producers and consumers — have lost nothing. But this leaves out of account the diversion of labor and capital from the more productive to the less productive industries. If this is taken into consideration, there appears to be a net loss.

If a prohibitive tax is laid on imports to protect home producers, and if the article is then sold at home at cost of production, the

Government gains no revenue from the tax and consumers pay more than before by the amount of the difference in cost at home and cost abroad. This difference represents roughly a net loss to the country, since presumably the producers might have been just as profitably engaged in some other industry.

21. Why protectionism has flourished despite a weak theoretical basis. We have now stated the general case in favor of free trade, and we have considered the various arguments in favor of restricting trade by means of import duties. Some of these arguments have some degree of validity, and no unbiased student can accuse all protectionists of crass stupidity. But other arguments for protection show a disregard of fundamental principles of economics which is equaled only by the contempt shown for the laws of physics by the man who embarks on the construction of a perpetual-motion machine, or by the boy who undertakes to lift himself over the fence by his bootstraps. On the whole, the case for protection is not a strong one. It is probable that if we selected the hundred leading economists of the world and put the matter to a vote by them as a clear-cut world issue — free trade or protection — they would favor free trade by an overwhelming majority. If, however, these one hundred economists were called in individually to act as advisers of their respective Governments, it is not so clear that the majority would advise in favor of free trade for their own countries. They might be inclined to favor protection for their own countries until such time as the other countries would agree to free trade.

Without a strong theoretical basis protectionism has flourished in the world, and free trade, theoretically the wiser policy, has languished. How to account for the dominant protectionist sentiment? The answer seems to be this:

The benefits flowing from protection are particular and direct. The direct beneficiaries of the protective tariff — in the United States primarily manufacturers in certain industries — know that they will benefit from the tariff, they know what legislation they want, and they know how to get it. The loss is general and indirect. Those who pay the bill do not always know it, and if they do vaguely understand that they pay they are not willing to go to much trouble to avoid it. A manufacturer may well spend $100,000 to procure protection for his product worth millions to him, but

a consumer of that product may not even take the trouble to vote against the policy that taxes him. Furthermore, several current fallacies work to the advantage of the protectionist — that money is the best form of wealth; that bringing money into the country is a good thing; that imports are bad because they take money out of the country; that the tariff raises wages and affords additional employment to labor; and even that the tariff by raising prices brings prosperity by generating a business boom. The economic theory that refutes these fallacious views is beyond the ken of the majority of the voters. Finally, the protectionist can always hoist the banner of patriotism. Who could be so base as to buy from the foreigner goods that he may buy at home? These, in brief, are the reasons why protectionism has flourished like the green bay tree, while the sounder doctrines of free trade have been cast into outer darkness.

22. Shall we retain protection? Even if free trade is theoretically more desirable than protection, it does not follow that we in the United States, if convinced of that fact, should at once abolish our protective tariff. To do so would be quite unwise, because sudden abolition or severe reduction of import duties long established would demoralize industry, causing severe losses to business men and widespread unemployment. Quite ironically the success of the free-trade party in politics, followed by abolition of protective duties, would bring results which would convince the majority of voters that free trade and calamity are synonymous terms. Under cover of our protective tariff hundreds of millions, possibly billions, of dollars have been sunk in industries that could not meet foreign competition under free trade. This has probably been a costly mistake. But to take away the tariff suddenly would be another costly mistake, possibly a more costly one. Business men in these industries would fail in great numbers and with enormous liabilities. In their ruin they would drag down others with them for reasons discussed in our chapter on Bank Credit and Business Cycles. Public confidence would be shaken, and the total loss might exceed all the capital invested in the industries directly dependent upon protection. The most ardent advocate of free trade in the United States should, therefore, hesitate to put his doctrine into practice in an abrupt manner. It is the view of the present writer that no additional protective duties should be imposed and that existing

duties should be gradually reduced. Furthermore, international conferences should be held to bring about a gradual reduction of duties in all protective tariff countries. Along with such agreements should be made certain other agreements relating to hours of labor, sanitary working conditions, workmen's compensation, restriction of child labor, and the like, so that countries whose producers were willing to maintain humane and decent conditions in their industries would not be compelled to meet the unfair competition of less humane and less decent-minded men in other countries. Here we have implied an argument for protection as strong as any that exists, but which we have not discussed above for the reason that it is not included among the arguments usually advanced in favor of taxing imports.

23. Restrictions on exports. Since the World War a new kind of restriction on international trade has become not only important, but positively dangerous to world peace. This is the restriction on exports developed either by government monopolies or by private organizations of business men acting with government approval. Such monopolies can exist to advantage only when a very large part of the total supply of some commodity is produced within a single country, as coffee in Brazil, nitrates in Chile, potash in Germany. A monopoly, public or semi-public, being once in control, may restrict production and exports and thus force the consumers in other countries to pay prices much above the cost of production. This sort of control of production and export and prices exists today in coffee, silk, nitrates, potash (German and French producers acting in concert), rubber, quinine, iodine, tin, sisal, quicksilver, and some other things.[1] Since, as stated elsewhere in this book, monopoly breeds monopoly and trade restrictions breed retaliation, we shall undoubtedly see a spread of this pernicious practice unless the present monopolies can be brought to an end. There are many other commodities of which the major part of the supply is produced in one or two countries such as cotton, copper, petroleum, silver, nickel, antimony, jute, asbestos, corn, and so on. It is obvious that restriction of output of the leading commodities of world commerce would necessarily mean restriction of consumption, and would therefore be detrimental to human welfare.

[1] Herbert Hoover, *Current History*, December, 1925, p. 307.

24. Policies of protection and restriction of exports quite similar in purpose and results. Some — particularly advocates of a protective tariff policy — see the evils that must manifestly grow out of restriction of this kind, without realizing the near kinship of such restriction to a protective tariff in a country of great natural resources, such as the United States or Canada. Yet the close relation between these two kinds of trade restriction can readily be shown. When Brazil deliberately withholds from the market coffee that has been produced or restricts production, in order to obtain a higher price, consumers in other countries must pay more for their coffee. Brazil gains — other countries lose.

When we in the United States, with enormous agricultural resources on which relatively little labor will produce a relatively large amount of wheat, corn, and hogs, or, let us say, bread and meat, embark on a protective tariff policy for the purpose of artificially stimulating manufactures, we close our markets, in part at least, to the producers of manufactured goods in England, France, Germany, Belgium, and other countries. Unless these manufacturers can market in other foreign countries all they sold there before and in addition what they might have sold in the United States but for the tariff, then their industries are restricted by our tariff. We may note two consequences of this restriction of sales abroad and production of manufactures at home by these Europeans. Selling less they can buy less, since in the long run none can buy more than he sells. Finding employment in manufacturing restricted, and lacking the means of paying for meat and bread bought from America, they turn to the production of meat and bread on their own limited and infertile fields, and this meat and bread costs them in labor far more than it would have cost them if it had been grown on the fertile land of the United States and had been paid for with manufactures produced in European factories. Thus, by refusing to buy their manufactures we make them pay more for meat and bread just as truly as if we established a government monopoly of meat and bread and then restricted output and exports.

A protective tariff policy of a country with great natural resources is therefore injurious to thickly populated manufacturing countries, and represents a species of national selfishness hardly in harmony with the doctrine of universal peace and good will now coming

into high favor. It is an older brother of the government monopoly and restriction of export policy now growing in importance. Both policies injure countries against whose producers or consumers they are directed. As a thoroughly selfish national policy, that of monopoly and restriction of exports is preferable to a protective tariff, because temporarily at least the former benefits the monopolist. Whether or not the protective tariff policy benefits the country that employs it is a debatable question. Deductive reasoning indicates that it does not benefit the country that employs it, but results in a net loss to both countries involved. It is to be hoped that the influential statesmen who see the evil of the one kind of restriction may also see the evil of the other, and bring an end to or reduce both these kinds of restriction at the same time.

The fact, alluded to above, that a country cannot in the long run buy more than it sells, or sell more than it buys, is frequently lost sight of, and it is for this reason that many persons fail to see that a restriction on imports is also a restriction on exports. If we sell more exportable goods and services to others than they buy from us, we must accept in payment for the balance due to us gold, non-exportable goods, such as real estate in the foreign countries, or mere promises to pay later. But large balances cannot be settled in gold, not merely because of the disturbing influence of imports of gold on prices, but because the total quantity of gold in the world is but a fraction of the total value of world imports and exports per year. Our exports alone in any three recent years exceed in value the total gold money supply of the world. In a limited way balances can be received in the form of title to real estate in foreign countries, as represented by land, railroads, factory buildings, etc. But in a world in which national selfishness is so great that restrictions on imports and exports are popular, great holdings of real estate in one country by citizens of another country might lead to confiscation of this property by the country in which it is located. As for promises to pay, such as government bonds, railroad bonds, and the like, these represent not payment, but postponement of payment. Eventually, if we sell our goods for such bonds or promises, we must either forgive the debt, and thus give our goods away, or accept payment in other goods. One of the current problems of world economics is the problem of collecting payments of money owed to us by the Eu-

ropeans for goods that we sold to them during and since the war. If we are to be paid at all we must be paid in imports of goods, but our protective tariff tends to keep out the very goods by means of which the debtor country could most readily pay us. We could with better grace insist upon being paid if we did not insist upon levying heavy taxes on the payments tendered.

EXERCISES

1. What industries in addition to agricultural industries would doubtless have grown up in the United States without a protective tariff? Why?
2. Electric light companies, since they must compete with sunlight in the daytime, can sell very little current for light until after dark. If all buildings were lighted artificially in the daytime, these companies could sell much more current and give employment to a great deal more labor. Would it not be advantageous to prohibit the use of transparent window glass, and thus create a greater demand for electric light? Would not more workmen then be employed at higher wages? Discuss.
3. Does the protective tariff in the United States cause real wages to be higher than they would be under free trade? (See Sections 10 and 11 of this chapter.)
4. Which would be the more effective method of maintaining high wages in a rather sparsely populated country of rich natural resources, a protective tariff on manufactures or severe restriction of immigration of wage-earners? Would both these measures together be more effective than either one separately? Discuss.
5. European countries owe the Government and the citizens of the United States many billions of dollars, which the majority of our people insist shall be paid. Is a high protective tariff on manufactures consistent with our demand that we be paid? Why, or why not? Is a fifty per cent duty on imports equivalent to a fifty per cent tax on payments tendered to us by our European debtors? Why, or why not?
6. Since gold is mined in the United States with highly paid American labor, why should we not levy a tariff on gold imports as we do on imports of other metals and manufactured goods? Are not our gold producers entitled to such protection? Discuss. Heavy gold imports of recent years have been very detrimental to the interests of gold producers in the United States. Why?
7. On what grounds may it be argued that a protective tariff applied by a country of great natural resources and sparse population is closely akin to restrictions on exports such as various countries in recent years have applied to rubber, coffee, and other commodities?

REFERENCES

I

Edie, L. D. *Economics: Principles and Problems*, chapters 32 and 33.
Ely, R. T. *Outlines of Economics* (1923 edition), chapter 19.
Marshall, Wright, and Field. *Materials for the Study of Elementary Economics*, chapter 13.

Mill, J. S. *Principles of Political Economy*, book III, chapters 17 and 18.
Taussig, F. W. *Principles of Economics* (1921 edition), chapters 34–37.

II

Ashley, P. *Modern Tariff History.*
Bastable, C. F. *Theory of International Trade.*
Grunzel, J. *Economic Protectionism.*
List, F. *National System of Political Economy.*
Page, T. W. *Making the Tariff in the United States.*
Stanwood, E. *American Tariff Controversies in the Nineteenth Century.*
Taussig, F. W. *Selected Readings in International Trade and Tariff Problems*
Tariff History of the United States.

CHAPTER XXXVI

THE FUNCTIONS OF GOVERNMENT

1. Five theories concerning the proper functions of government. Opinions differ widely in respect to the powers that the government ought to have and the services that it ought to perform. At one extreme are the anarchists, who are not convinced of the desirability of any government at all and would abolish government as representing an unnecessary expense and a general nuisance. At the other extreme are the communists, who would so increase the power and the functions of government as to put it in possession of all economic goods, not only producers' goods, but also consumers' goods, so that everybody, with certain exceptions, would work for the government and depend upon the government for his supply of consumers' goods. Standing between the anarchistic theory and the communistic theory of government may be noted three other more or less distinct theories, referred to as the laissez-faire theory, the socio-political theory, and the socialist theory. The first of these three is closely related to the anarchistic theory, and the last is akin to the communistic theory, while the socio-political theory takes a middle ground. Since economic activities and the form of economic organization are profoundly affected by the particular theory of government which happens to be in the ascendency at any given time, it seems desirable in a book on economics to examine the divergent views on the proper functions of government represented by the five theories named.

2. A government not an abstraction but a group of men with more or less limited political power. It may be helpful in clarifying one's views on the proper functions of government to consider what a government really is. To many people it seems to mean a glorified abstraction representing the quintessence of omnipotence and omniscience, having not only political power and wisdom but also the power to suspend even the laws of nature, or to change them for the better. To others it means a few imps of Satan using their political power to enslave mankind. But in reality a government consists of one man, or a small group of men, much like other men,

who through their subordinates exercise political control over the rest of the people in their territory — a control that is more or less advantageous for every one concerned because it is better than entire absence of control, or anarchy, as will appear below.

If the government is composed of a strong man or a group of strong men, or the political heirs of such men, whose power has been gained and retained by force of arms, and not by free consent of the people, it may be called an autocracy. If the governing group has been elected by vote of the people and retains its power only by consent of the people, the government may be called a democracy. In either case the men in power may take either one of two distinct views of their relation to the rest of the people — they may look upon themselves as servants of the people or they may look upon the people as servants of themselves. It is a more or less common assumption that the autocratic government makes the people serve it, while the democratic government serves the people. There is, however, no such sharp distinction as this between the two forms of government. The autocratic government, although it may and probably will put its own interest above the interest of the people, will serve the people to some extent and will limit its demands upon the people for fear of revolution, if for no better reason. Furthermore, if the governing group is wise it will recognize the truth of the saying, "Poor people, poor king." On the other hand, the members of the governing group in a democratic country, although aware of the fact that they must please the people or be voted out of office, may by smooth politics appear in the light of self-sacrificing servants of the people, and thus please the voters, although in reality they are enriching themselves at the people's expense. A former United States senator once remarked in pungent fashion that some politicians can suck eggs and hide the shells.

Although it is very probable that democratic governments serve the people better than autocratic governments, and although the passing of the autocrats may be viewed with satisfaction, it should not be forgotten that a corrupt or incompetent democratic government may serve the people worse than an able and benevolent despot. Our main purpose here, however, is not to point out the relative merits of various forms of government, but to consider the proper functions of government, and in this connection it must be

noted that the little group of men whom we call the government have not a great deal to distinguish them from other men except the fact that they hold office. They govern, and by written or unwritten constitutions and by other political rules, customs, or traditions, their power to serve or harm the people may be more or less circumscribed. But in industry, honesty, wisdom, and other human characteristics, they are not conspicuously different from the general run of men — being more like the ordinary man, probably, in a democracy than in an autocracy. If this fact were always kept in mind it might serve to temper some people's faith in government enterprise and to allay other people's suspicion of public officials.

3. **Anarchistic theory unsound.** Let us pass now from this brief consideration of the nature of government to a consideration of the question of whether or not a government of any kind is desirable or necessary, and if so what functions it may properly perform in the best interests of the people. Whether or not we think a government of some kind is desirable and necessary for human welfare depends largely upon our view of human nature — upon our view in particular of how people would behave in the absence of organized government.

A prominent characteristic of human beings is selfishness. They desire the good things of life for themselves and the immediate members of their families more than they desire the welfare of others. Furthermore, some individuals in any normal group of human beings will, unless they are restrained, take the good things of others away from them by force, even killing the despoiled if they resist. And some groups acting as a unit will take the good things away from other individuals or groups, killing and plundering in wholesale fashion, unless the other groups are able to defend themselves from the robber bands or the robber nations. Here, then, we have two good reasons for maintaining governments. It is desirable, even if not absolutely necessary, to have a government to maintain order and security within the community and to defend the community from external aggression.

Conceivably each individual or family could make some sort of defense against attacks of individual robbers and murderers in the group, but the weaker members of the assailed group would be at a great disadvantage against strong professional criminals skilled in

the use of weapons and able to surprise the victims when the latter were off their guard. Furthermore, the necessity of standing on guard against marauders would greatly hamper the workers in their everyday business of production. Against organized bands of robbers, or hordes of invaders from outside the community, individuals or family groups would be helpless. Possibly private individuals, seeing the value of protection, might organize armed bands of paid men, and sell protection to the rest of the people, as insurance companies now sell protection against fire. But if such armed bands became powerful enough to protect people from other armed bands, they would also become powerful enough to begin robbing on their own account, and would be tempted to do so, in view of the greater reward. These armed bands might proceed to declare themselves governments, and thereafter rule the people by force. There is, in fact, a close similarity between the origin of some autocratic governments and this sort of armed band. If a government does not develop in some way similar to this then it will pay the people to select certain members of their group, delegate to them political power, and supply them with the funds to employ enough armed men to maintain internal order and security and provide protection against external foes. In other words, it pays to set up a government and to provide it with a police force and an army.

A government with at least this much power seems desirable to everybody except anarchists. And the very fact that governments exist is in itself a conclusive argument against the anarchists' contention that a government is unnecessary and undesirable. If it is unnecessary and undesirable it presumably exists against the people's will, and may be considered therefore an armed band plundering the people, against which the people should have protection. But such protection the people cannot give themselves acting individually, as by isolated bomb-throwings. If they are to protect themselves from this plundering government, they must organize another government in order to do it.

4. Laissez-faire theory — presumption is against unnecessary government activity. The laissez-faire theory holds with the anarchistic theory that government is an evil, but it considers government a lesser evil than anarchy. It holds that some form of government is necessary for the maintenance of internal order and

security and for protection against foreign aggression. In addition to these two necessary functions of government, the laissez-faire school of political economists believe that the government may for the good of the people exercise certain optional functions, undertaking to provide for the people goods and services which would not be provided by private enterprise at all, or would not be provided by private enterprise so advantageously as by the government.

The optional functions of the government would, however, be limited in number, because, according to laissez-faire, practically all goods and services that are desired by the people will be produced by private enterprise more economically and on the whole more satisfactorily than they can be produced by the government. Two influential advocates of laissez-faire were the economists Adam Smith and John Stuart Mill. Smith's great book *The Wealth of Nations*, published in 1776, made a strong plea for non-interference of government with industry, and was largely responsible for the ascendency of the laissez-faire theory in England for a hundred years after its publication. Mill's *Principles of Political Economy*, published in 1848, likewise argues strongly for laissez-faire.

The laissez-faire theorists did not draw any hard and fast line as representing the absolute limit of government enterprise or government interference with business, but rested their case on general expediency with the presumption against any unnecessary government activity. Mill, for example, says in this connection:

> Laisser-faire, in short, should be the general practice; every departure from it, unless required by some great good, is a certain evil.[1]

Or again:

> We have observed that, as a general rule, the business of life is better performed when those who have an immediate interest in it are left to take their own course, uncontrolled either by the mandate of the law or the meddling of any public functionary.[2]

In addition to protecting life and property from violence and fraud, the government, even under the laissez-faire theory, may undertake such enterprises or perform such services as the following,

[1] J. S. Mill. *Principles of Political Economy*, book v, chap. xi, sect. 7. It should be noted that later in life Mill changed his views.

[2] *Ibid.*

most of which are enumerated by Mill as being proper functions of the government:

1. The production of goods or services which are worth more than they cost but cannot be produced by business men for profit because payment for the service rendered cannot be exacted from the user. Lighthouses, for example, are worth more than they cost, but it pays no individual to build them, because the ships that pass in the night will not stop to pay.

2. The production of goods and services, the use of which, by people who cannot or will not pay a price for them that covers cost of production, ought to be encouraged in the interest of public health and safety. Examples of these are elementary education, sewer systems, the prevention of disease, the disposal of garbage.

3. Certain public works, such as roads and bridges or certain other enterprises, which are necessary for the proper economic development of the country, but which are not likely to be systematically developed by private enterprise, or which if left in private hands may become instruments of extortion and repression of industry. With the possible exception of an industry which is by its very nature a monopoly, no enterprise would be included under this head that involved both complicated problems of operation and heavy capital investment, because it is the laissez-faire theory that government officials can handle effectively only comparatively simple enterprises whose operation can be reduced to a fixed routine. Under this head might be included the postal service, because it involves no great investment of capital, but not the railroad system, which does involve heavy investment. Roads and bridges might be included, although representing heavy expenditures, because they involve no serious problems of operation.

4. Various services in the interest of business convenience, or the maintenance of private property or public order, such as the recording of deeds, settling of succession of estates, peaceful settlement of disputes over ownership of property, issuing of licenses of various kinds, coining or printing of money, and standardization of weights and measures.

Some of the foregoing services of government represent necessary functions of government, since they are incidental to the protection of life and property, and others represent what Mill refers to as

optional functions. Although the list includes a rather wide range of government activities, most economists of the present time favor a considerable extension of government activities even beyond this number. And most governments to-day exercise functions which by the laissez-faire school would not have been considered proper functions of government. We may say "would not have been" rather than "are not" because the laissez-faire doctrine has been abandoned by most thinking men. To-day the dominant theory of government is the socio-political theory.

5. Socio-political theory favors extension of government activities. The difference between the laissez-faire theory and the socio-political theory lies mainly in this: The former begins with a presumption against government enterprise and government interference with industry, holding that generally the interest of the people will be best served when each is left free to serve his own interests as he sees fit. The latter begins with a presumption in favor of government interference in industry, holding that when each is left free to serve his own interest as he sees fit, the people will suffer from various great evils, and that these evils may be and ought to be prevented or corrected by government action. The socio-political theory, like the laissez-faire theory, may be said to rest its case on general expediency, but the former holds many political activities to be expedient which the latter would consider inexpedient.

The evils which the socio-political theory would prevent or correct include unfair methods of competition, combinations or conspiracies in restraint of competition, monopolies, dangerous and unhealthy conditions of labor in factories, feudal conditions in industry, unemployment, excessive hours of labor, wages below the level of subsistence, wasteful methods of production, financial manipulation, adulteration of food products, great inequality of wealth, and many other undesirable activities or conditions. Some of these evils are as old as industry; others have become serious only since the industrial revolution, under which is included the development of the factory system, modern methods of transportation, large-scale industry, and the business corporation. In fact it is owing largely to this change in industrial conditions that the socio-political theory has gained the ascendency over laissez-faire. If Adam Smith had writ-

ten his *Wealth of Nations* a hundred and twenty-five years later he would doubtless have been in favor of greater interference of government in industry. Mill, who lived in the period that saw the growing evils of the factory system, changed his views in later years, and urged government action for the diffusion of wealth, including regulation of inheritance and appropriation of the unearned increment of land.

6. Government regulation of industry, government ownership and special taxation of the rich. The socio-political theory holds that the government should interfere with industry, or embark on government enterprises, for the improvement of social conditions. To this end it favors measures to protect the weak and honest from the strong and unscrupulous, and measures to promote a greater degree of equality of wealth and income among the people of the country. The socio-political theory of government as applied in practice leads to the expansion of government action in three directions, namely, government ownership and operation of industry; government regulation or control of industry; and a system of taxation designed, not primarily to raise necessary public revenue by taxing every one according to the canon of equality, but primarily to combine the raising of revenue with a program for reducing the inequality of wealth and income.

In earlier chapters of this book has been discussed in detail government regulation of industry in the United States, as represented by government control over public utilities and railroads and over the banking system, by anti-trust legislation, and by labor legislation. In such regulation we have gone far beyond the limits marked out by laissez-faire. In government ownership we have done little except in the case of the Postal Service and some local public utilities, and this much even laissez-faire would permit. In addition may be mentioned our government-owned railroad in Alaska, the Erie Canal, and the Panama Canal. In taxation we have applied the socio-political theory with considerable effect during recent years, as will be noted in Chapter XXXVIII.

7. Conservatives, liberals and progressives are now all socio-political theorists. Those who would carry government interference in industry little, if any, beyond the bounds of laissez-faire are in politics called conservatives, or, in the United States — more or

less derisively — standpatters. Those who would go further with the policy of government interference are variously referred to as liberals, progressives, radicals, and socialists. By standpatters in the United States these liberals, progressives, radicals, and socialists are all lumped off together as more or less undesirable groups of socialistic cranks, or "reds," who vary in color from the "pink parlor socialist" to the deep-dyed red of the Industrial Workers of the World, who are inclined to preach bloody revolution and confiscation of private property. Nevertheless the liberals and progressives stand closer to the conservatives or standpatters than they do to the socialists. Conservative and progressive alike believe in private enterprise and differ only in their views in respect to the extent to which private business enterprise ought to be limited by government ownership or regulated by government officials. They believe in individualism, more or less modified by government ownership and control.

But socialists would substitute for individual or private business enterprise, collective or public ownership and operation of all important industries. Let us note, then, the reasons why socialists would like to make this great change in industry, the methods they might use in transferring business property from the present owners into the hands of the government or the socialist guilds, and the principles according to which, under socialism, production would be carried on and the product divided among the people.

8. State socialism: three reasons why some people urge its adoption. We are not here concerned with the history of socialism or with the various shades of socialistic doctrine. It will be sufficient for our brief discussion to note that at present there are two main brands of socialism — state socialism and guild socialism. Consider first state socialism, under which all industries, or at least all important industries, would pass into the hands of the government to be operated under the direction of government officials for the benefit of all the people. We should have, under this form of socialism, universal government ownership of the means of production, or producers' goods, leaving in private possession only consumers' goods. Except in the recent case of Russia, state socialism has never been tried out in practice, and the experiment in Russia throws no clear light on what might be the outcome of socialism in other coun-

tries if put to the test. How state socialism would work out in practice is therefore a matter of opinion based on such knowledge of facts and such prejudices as one may possess.

People who urge the adoption of state socialism do so mainly for one or more of the following reasons:

1. They believe that under socialism goods and services will be provided in greater abundance — that industry will become more efficient.
2. They believe that a more just distribution of the products of industry will result than under the system of private enterprise.
3. Some — the lazy, the inefficient, the failures, and the generally disgruntled — believe that the fault lies not in themselves but in the industrial system, and that some other system would give them a better chance to enjoy the good things of life in greater abundance.

9. Private enterprise a wasteful system of production. The assumption that under socialism industry will be more efficient — that the output of goods will be increased — rests on various grounds. Under competitive conditions private business enterprise is exceedingly wasteful. When any particular industry is prosperous and yields the business men large profits, expansion takes place and unnecessary duplication of plants follows. Plants are built at great expense of labor and materials which serve no useful purpose. Competitors spend enormous sums in advertising their rival products, each striving to outdo the others in puffing his wares. A dozen salesmen cover the same territory and sell no more than one might sell in the absence of the others. The labor of the eleven is therefore wasted, from the social point of view. When a period of business prosperity results in a boom and a consequent crisis, business men in great numbers can no longer sell at a profit. Thereupon they close down their plants, until a large part of the productive power of the country in land, labor, and capital, is idle. These are only part of the wastes that result from competition.

Under privately owned monopolies conditions may be even worse. The monopolists may deliberately restrict output in order to sell at a higher price and gain a greater net profit. If the government attempts to destroy the monopolies and to restore competition it is likely to fail in the attempt, with the result that its efforts in money and labor represent just that much additional waste. If government regulation of monopoly is resorted to there is again waste —

two organizations now exist side by side, one to produce at as great a profit as it can, and the other to prevent the first from making an unreasonable profit. The cost of regulating our railroads, for example, is at present many millions of dollars a year.

Other sources of waste under private enterprise are the idle rich, who with incomes from ownership of land and capital find it unnecessary to labor; the quarrels between labor and capital resulting not only in strikes and in long-continued cessation of labor by thousands, and even hundreds of thousands, of men at a time, but in a sullen animosity felt by workmen toward employers and a determination — growing out of this — not to do more than is absolutely necessary to hold their jobs; the great number of persons who devote their time to unintelligent speculation on the stock and grain exchanges, hoping to make enough on a lucky turn of the market to live in idleness the rest of their lives; the diversion of land, labor, and capital from the production of useful and necessary goods for the masses to the production of luxuries and trivialities for the excessively wealthy — to the end, for example, that land, labor, and capital are employed to produce dainty tidbits for my lady's Fido while children grow up diseased or malformed for lack of proper food and medical attention. With these various forms of waste so obvious and glaring, it is easy for one inclined toward socialism to be convinced that under the socialist state, production, particularly production of useful goods, might be enormously increased.

10. Glaring inequality of wealth and incomes under private enterprise. It is probable, however, that more people are turned to socialism by a belief that the system of private enterprise leads to an unjust distribution of wealth and income than by the conviction that the present system is wasteful. In all countries in which the present capitalistic system of industry has been tried out, glaring inequalities in income and ownership of property exist. In each of these countries the story is the same: a comparatively small percentage of the people receive a relatively large part of the total income and own an even larger part of the property. In the United States, for example, figures compiled by the Bureau of Internal Revenue indicate that in 1918, six per cent of the people in possession of incomes received twenty-seven per cent of the total income, leaving seventy-three per cent of total income for the other ninety-

four per cent. Inequality in ownership of property is even greater, since the incomes of the poor consist mainly of wages, and in a large proportion of cases exceed the property owned, while the incomes of the wealthy are in large part derived from the property they own and represent only a small percentage of that property. The $100,000 income of a millionaire may be only fifty times as large as the income of his chauffeur, but his property may exceed the chauffeur's by a thousand times.

Most of the large incomes are derived mainly from the ownership and control of the instruments of production — the natural resources of the country and the capital equipment used in industry, and socialists contend that by abolishing private ownership and control of industry the fundamental causes of inequality in incomes and possessions would be removed. In view of the important part which inequality plays in socialist doctrines it seems desirable to note more closely the causes of inequality.

11. Fundamental causes of inequality. The fundamental causes of inequality can be brought out most clearly, perhaps, by considering how men acquire large incomes and fortunes. First of all we must remind the reader of the causes of differences in wages as discussed in Chapter XX. In brief, differences in wages result from differences in the complexity and attractiveness of the work to be done, and differences in the natural ability, training, and experience of men. For these reasons men able and willing to do some kinds of work are very scarce relatively to the demand for them, and men able to and willing to do other kinds of work are superabundant relatively to the demand for them. Therefore through the operation of the law of diminishing vendibility and marginal vendibility, wages range from the very high to the very low. This is one fundamental cause of inequality.

12. Unusual business ability and profits. Men of unusual business ability — men with judgment, initiative, resourcefulness, administrative capacity, who are willing to take business risks, who are willing to hazard the loss of what they have to gain much more — often amass great fortunes. If they buy their producers' goods and sell their product in a competitive market, if competition is fair and free, and they take no unjust advantage of their employees, their competitors, or their customers, they earn their fortunes fairly.

They take goods which others are willing to sell at a low price, and make from them things which others buy at a higher price, and thereby presumably add to the sum total of human satisfactions. They become richer thereby, and others not only become no poorer but gain in the process. Such profits tend to measure the business man's service to society, as salaries and wages tend to measure the service of others.

13. Luck. But in business not only ability counts, but luck, fraud, intimidation, and monopoly, and it is often impossible to determine whether a fortune amassed in business is the result of pure business ability — the sort of ability that serves society by producing more and better goods than would be produced without it — or the result of these undesirable factors. In the ups and downs of prices resulting from the business cycles and from fluctuations in demand and supply, some men of no great business talent manage to snatch by luck huge fortunes. Some grow rich by lucky operations in the stock market and the commodity markets, in operations that represent gambling rather than business, and they serve no useful purpose in production. These must be distinguished from the intelligent speculator who performs a useful price-stabilizing service. The intelligent speculator buys wheat and other commodities when an overabundant supply depresses the price, and later sells in time of greater scarcity. He thus tends to maintain prices on a more even level, and prevents waste in the season of abundance and calamitous shortage in the seasons of scarcity.

14. Fraud, unfair competition, monopoly. Many business men grow rich through fraud. Directors and other officials of corporations betray their stockholders, in ways detailed elsewhere in this book, and manipulate the prices of their stocks on the market to their own enrichment at the expense of innocent or foolish investors. Some gain possession of producers' goods by fraud, and some sell an inferior product to the unwary at the price of high-grade goods. Some grow rich by boastful and dishonest advertising that represents an inferior article as being a most superior one and thus tempts the gullible to buy.

Some grow rich through suppressing competition in the sale of their product by intimidating competitors, or by other unfair means of competition, or by price agreements with other producers, or by outright purchase of competing plants.

15. Interest and unearned increment. Once in possession of surplus funds, whether saved out of wages and salaries, or out of business profits, one can invest in income-producing property or lend at the current rate of interest; and this provides an additional source of income which makes further saving and investment possible to produce more interest. Thus small savings may grow into small fortunes, and small fortunes into large ones, and interest becomes a cause of inequality.

If one's savings or profits are invested in land, there is the possibility of growing rich from the so-called unearned increment. As population grows, rents tend to rise, as explained in an earlier chapter, and the price of land, the capitalized value of the rent, rises. Agricultural land may increase in value from a few dollars an acre to several hundred dollars, and land in cities may become worth hundreds of thousands of dollars an acre, or even millions, — all this without the owner's having turned over his hand to produce the change.

16. Inheritance of property: money makes money. Another great cause of inequality is inheritance of property. Through the institution of inheritance the great incomes and fortunes built up by the successful of one generation are transmitted to their descendants. The rich man's son starts out in life a rich man. He needs only to exercise a little care in investing his inheritance in safe income-producing property, particularly land which tends to increase in value, to become much richer before he dies. Even if the rich man leaves half a dozen sons to share his fortune, each may become richer than his father, and without labor. If the rich man leaves $6,000,000, and each son gets $1,000,000 and invests it to yield six per cent, his million at compound interest may double three times or more in his lifetime, and become thus, in succession, two, four, and eight millions. If the son makes fortunate investments in real estate in a growing city the rate of increase may be much more rapid. If he lacks the reasonable degree of intelligence necessary to make fairly safe investments, his father may have provided him with a trustee who looks after all such troublesome details for him.

The possession of property by the father also helps the son in other ways. It permits him to get a good education, often beyond the means of more able youngsters. It permits him to make con-

tacts with influential men who will help him if he goes into business for himself, or when he seeks a salaried position with others. Always the possession of money tends to make easier the acquisition of more money. Thus inequality tends to perpetuate itself, through the institutions of private property and inheritance.

17. The two flags of socialism. The great wastes of the competitive system and the great inequality of wealth and income that accompanies the private ownership and control of producers' goods give socialism a powerful appeal to many high-minded men and women. To many of them the idea becomes a religion for the sake of which they will make, if need be, heavy sacrifices. They believe that socialism ought to prevail for the good of humanity, and often look upon themselves as crusaders in a noble cause, fighting an army of mercenaries of the capitalistic state. But along with such socialists we find others of a different stamp, who may be likened to the camp followers of an invading army, who hope to profit handsomely in the looting that may follow when the enemy surrenders and the spoils are distributed among the victors. Such looting would not necessarily appear to these socialists as being unethical or criminal, since they may feel convinced that it would merely represent recovery by the people of that of which they had been despoiled by the "robber barons of the capitalistic state." The socialist movement may then be considered to rest on two diverse bases. On the one hand there is the intellectual, the idealistic, the ethical, and the religious basis. On the other hand there is the basis of ignorance, greed, envy, and revenge. The socialist army, one might say, is composed of two more or less distinct divisions, and it marches under two flags — the red flag of human brotherhood and the common good, and the red flag of robbery, bloodshed, and revolution. The two flags being of the same color, the undiscriminating often fail to distinguish the one from the other.

18. Methods of transferring ownership and control of industry to Government. Let us give some consideration to the methods that might be used to transfer the present industrial equipment — land, railroads, factories, stores, warehouses, and the like — from the ownership and control of the present proprietors to the ownership and control of the government. We need not concern ourselves here with details but shall merely note the general schemes that

might be employed. First, the transfer might be made gradually, industry by industry, over a considerable period of years, or it might be made suddenly — immediately after the election, let us say, of the first socialist President and Congress. Again, it might be made by the process of confiscation of business property, with no compensation to the owners, or it might be accomplished by means of a forced sale to the government, payment being made probably in government bonds.

If the change is made gradually it will indicate that the socialists lack full power and must compromise with the more conservative element in the country. In that case the owners will quite likely be paid in government bonds for their property, although probably not its full value. This would not be true socialism, but merely more or less general government ownership and control of industry, which would still leave former owners of the industrial equipment in possession of a vast income in the form of interest on their government bonds. Inequality would still continue, and with it would come certain complications that do not exist under the present system. The wealthy holders of government bonds would have no industries at their disposal in which to invest their surplus income, over and above their expenditures for consumers' goods. Their only fields of investment would be in more government bonds, or in enterprises in foreign countries. Large incomes in the hands of some hundreds of thousands of people with extremely limited opportunity for investment might have very unwholesome results. If the present monetary system were retained — as it probably would be, somewhat modified, perhaps — these persons would have huge money incomes which they would be tempted to spend mainly for consumers' goods. They could thus draw out of the national industrial product enormous quantities of consumers' goods, and would be in a position giving them neither much incentive nor much power to add to the output of industry. Government ownership of a few selected industries does not present this sort of problem. It is difficult to escape the conclusion that once government ownership had become practically universal, confiscation would result indirectly by government repudiation of its bonds, unless it should happen that the bonds were more or less equally distributed among the whole population, which would be unlikely.

19. Methods of operating industry under socialism. Wages and the price system might be retained under socialism. Assume now that the change has been made, and that the property is in the hands of the socialist government, as a result of a policy of confiscation either directly or indirectly applied, so that no one any longer receives an income from the private ownership or control of business property. According to what principles would production be carried on, and on what basis would the product of industry be divided among the workers? Socialists seem to be unwilling to lay down a definite program. One is left to find the answer through deductive reasoning or through conjecture.

No such far-reaching changes in social and economic organization would necessarily accompany state socialism as is sometimes assumed. The family and the church would not necessarily be disturbed. Money would very likely be retained as a medium of exchange, and the price system might still exercise its function of regulating demand and supply of labor and commodities. Assume that state socialism were established with no changes beyond those required to put ownership and management of industry into the hands of the government. Industry would then be organized, and production and distribution of wealth would be carried on in some such way as the following:

(1) Every distinct industry, or more or less closely related group of industries, would become a government monopoly under the direction, let us say, of a director general with a corps of assistant directors, general managers, superintendents, foremen, and the like. Within any industry there would be a monopoly, we may assume, in order to avoid the wastes of competition such as represent one of the weaknesses of the present system. We should thus have, for example, an automobile monopoly, a coal monopoly, a machine-tool monopoly, and so on. The automobile monopoly might for reasons of economy produce also motor cycles, autobusses, and even electrical refrigerators and other products that might readily be produced by the same general kind of plant.

(2) Each director general would produce, as efficiently as he could, his particular product or group of products, and sell them in the open market just as goods are sold to-day, with this exception: consumers' goods would be sold only to persons with incomes from

labor, since no other incomes would continue, and producers' goods could be sold only to other government monopolies operated under other director generals. Competition by buyers would, however, still continue, except in those cases in which one industry produced a product used exclusively by one other monopoly, as, for example, looms for the textile industry. Even in the case of the textile machines there would be indirect competition by buyers. If the textile monopoly tried to take advantage of the textile machine monopoly by offering only a very low price for machines, the latter might turn to the production of machines for other industries, which offered better prices. But there would be many producers' goods in more or less general demand by the various government monopolies. All would require labor of different kinds, building materials, fuel, lubricating oil, and many other commodities. All metal-working industries would compete in the metal markets, and wood-using industries in the wood and lumber markets, and so on. There might be competition, too, among workmen for jobs or positions, and competition for orders between producers of competing products, such as the brickmaking industry and the lumber industry — unless these were put together under one management.

20. Cost of production principle applied. With competition thus pretty generally prevailing among buyers of the products of government industries and among workers seeking employment, but with little or no competition in the sale of products, how would prices be determined in the socialist state?

The government monopolies would have to fall back upon cost of production as a regulator of price, just as our public service commissions do to-day. They would have to cover at least the costs of operating their plants and the costs of maintaining them in good condition. They ought to make a profit, in addition, to allow for gradual expansion of capacity and output, to satisfy the increase in demand resulting from increase in population or in the purchasing power of the people. They would need to make no allowance for interest, since interest as a money cost would not exist under socialism. The director general would have no special incentive for charging a price higher than would be required to yield these results. His purpose ought to be to sell his product as cheaply as possible, and yet cover costs of production and provide for the proper

maintenance and expansion of his plants. His costs, as already indicated, would be the aggregate prices he paid for all his producers' goods including labor, a large part of which prices would be determined in part by competition among buyers for the available supply.

But what would determine the supply of any monopolized product? One cannot sell an unlimited supply at cost of production. Under monopoly, as under competition, marginal vendibility is the immediate price-determining factor. A given quantity can be sold at a given price; a smaller quantity at a higher price; a larger quantity only at a lower price. If at any given time a director general found that he could not sell his total output at a price that covered costs, he would probably restrict output until he could get a price equal to or slightly in excess of costs. There is, of course, the possibility that he might cut price in order to increase demand and thus cut costs, through economies of larger-scale production, more than he cut prices. If at any given time a director general found his costs considerably below price, he might cut price, and then expand output as the lower price brought a greater demand. In fact, the problem of the director general would be like that of the head of a private monopoly, with this difference: he would try to produce the greatest quantity he could sell at cost of production, rather than try to sell that quantity which would yield him the highest net gain. Assuming equal ability and industry in both cases, the government monopoly would produce a larger output and sell at a lower price than the private monopoly.

If we could imagine our public utility companies voluntarily adopting a price policy like that forced upon them by efficient public service commissions, we should have a close analogy to the nature of the policy to be followed by the director generals of industry in a socialist state.

21. Assuming ideal conditions, gains would come from socialism, but smaller gains than socialists assume. If, now, we might assume that a socialist state would manage industry as here indicated, and if the whole scheme worked smoothly and effectively, under able and honest management, free from political influence, corruption, or favoritism, there is reason to believe not only that production would be greater than at present, but that in the distribution of the product inequality and injustice would be greatly reduced. The great

wastes of competition and other wastes arising from the present capitalistic system would be largely eliminated. Incomes would be more nearly equal, because labor income would be the only form of income. With the present competitive wage system retained, there would still be, of course, great differences in wages, because the causes of differences in wages — differences in the attractiveness and complexity of the work to be performed, and differences in the capacity, training, and experience of men — would exist under the socialist state even as now. The socialist state might try to iron out differences in wages, but it could not remove the causes of differences in wages unless it could make all men and all jobs alike. But income in the form of economic rent, interest on capital, profits of business enterprise, whether acquired through industry and ability or through luck, fraud, or inheritance, would be no more. The whole product of industry, in the phrase of the socialists, would go to the workers that produced it.

All this seems to offer attractive possibilities to the majority of men — to all those who might thus expect to gain more than they would lose from the confiscation of their present property, and to those who might be willing to make a personal sacrifice for the good of all, those who believe in the greatest good for the greatest number. But the gain at best would assuredly be less than most socialists imagine, and there might be no gain at all in general welfare, but a loss instead. There might be a loss, not only to the wealthy of to-day, who would be despoiled of their property, but to the poor as well. They might become even poorer. Instead of enjoying a fair degree of prosperity as they do to-day in the United States, they might be reduced to extreme poverty. In the United States, at least, the poor have much more to lose through socialism than their chains, and it is extremely doubtful whether they have a world to gain.

22. **Some alleged gains from socialism are purely fictitious.** Note that some of the alleged gains of the working class from socialism are fictitious. First, there is the more or less common assumption that the workers under the present system get in wages only a small fraction of the value of their product — as, perhaps, one fifth — and that under socialism they would get the whole value of their product, and thus enjoy wages five times as great as present wages, even with

industry no more effectively organized. This leaves out of account various facts of considerable importance, such as that the woolen cloth manufacturer, for instance, must buy wool, machinery, and other supplies and materials, as well as labor, and that he must have the use of buildings and building sites. If the woolen mill employees are to get the full value of their product, in the sense of all the money the manufacturer receives for his product, then there is nothing left over to pay the laborers who helped produce the wool, the machines, the buildings. It leaves out of account, too, that gradually machines and buildings wear out and must be replaced, for which purpose the manufacturer sets aside a depreciation reserve, which does not represent profit but merely cost of production that must eventually be met, when the old machines and buildings are worn out and must be replaced by new ones.

It is a common assumption, too, that the large incomes of our successful business men and other millionaires, which under socialism would be confiscated by the State, would go to swell the wages of the workers. Even if the workers could thus "cash in" on the socialist policy of confiscation of private property and the incomes based upon it, their gains would not be so enormous as many suppose. The rich are too few — the poor too many. Henry Ford is said to have enjoyed an income one year of $100,000,000. Divided among all the people of the country, it would have added to the income of each less than $1. If the workers could, however, get all incomes from property, the aggregate amount would be so large that the workers would enjoy a substantial addition to their income, possibly $150 or more per person, or $750 for a family of five. But as a matter of fact socialism would not divert to the workers in the form of wages, or lower prices of commodities, the whole of the vast incomes of the wealthy.

Henry Ford and other extremely wealthy men devote the greater part of their incomes to the very purposes to which the socialist State would have to devote a large part of its income — the expansion of the industrial equipment of the country, the support of educational, scientific, and philanthropic institutions, and other things of this sort that the socialist State could not afford to neglect. The only part of the incomes of the present wealthy class that might be diverted to swell the income of the workmen and to increase the

quantity of consumable goods available for their use, is that part which the rich themselves now spend for consumers' goods. This is doubtless a great sum, but divided by 115,000,000, the number of persons in the United States, it shrinks to rather slender proportions.

23. The scheme might not work well in the hands of politicians. Next consider the probability of the socialist State industries functioning as smoothly and as effectively as we have been assuming. We have assumed that the director generals of the various industries are able and honest men, comparing favorably in ability with the present captains of industry. But there is no assurance that such would be the case. These director generals and their chief subordinates might be elected by vote of the people. Or possibly they would all be appointed by one Supreme Director General of All Industries, himself elected by vote of the people. Or possibly there would be a Directory in Control of All Industries, consisting of a small group of men who would appoint the managers and subordinates of the various industries. At any rate, the control of the industries would be in the hands of politicians; politicians, perhaps, much like those who now sit in the halls of Congress, who would be influenced in their policies by a desire to please the people who elected them, since their votes would be necessary for reëlection.

We have assumed that there would be a wage system much like the present wage system, with differences in wages governed mainly by differences in the attractiveness and complexity of the work to be done, and by differences in the intelligence, training, and experience of men. In short, we have assumed that wages would still vary roughly with the value of the services performed by the workers. But there are other possible wage systems that might be tried out in a socialist state. The people might vote to let each worker be paid according to his needs rather than according to his deeds, as, for example, $10 a week for every person dependent upon him for support. Or they might vote to let the wages vary with the attractiveness of the work, leaving out of consideration the complexity of the work, so that garbage collectors would be paid more than railroad managers or college presidents. Note what might be some of the undesirable consequences of the conditions here suggested.

24. Business ability and vote-getting ability may differ. Direc-

tor generals of industry elected by the people would probably be less able, on the average, than captains of industry under the present system. These men have become captains of industry in most cases through unusual business ability, although trickery, unfairness, and corruption have played a part in the rise to power of some of them. It is generally admitted that men like Henry Ford, John D. Rockefeller, Charles Schwab, Judge Gary, and the other men who have been at the head of our great industries during the last twenty-five to fifty years, and under whose leadership these industries have expanded wonderfully to the general good of the country, have been men of unusual business ability. That in some cases there have been practiced policies that savored of piracy and fraud does not belie the presence of ability. A captain of industry of small ability is soon relegated, under private ownership, to the rank of private or reduced to the non-commissioned ranks.

Under socialism the people might elect able men to direct their industries, but there is a strong probability that they would elect some men, at least, who had greater ability in fooling the people than in serving them. And in detecting an incompetent manager of industry and throwing him out of power, or in detecting a competent manager and giving him more power, the voters would probably be less efficient than the profit-and-loss statements that control the destiny of managers of private business enterprises. In other words, under our present system a man must display considerable business ability to gain and retain a high position in industry. But under socialism he would need to know only the art of getting votes. Conceivably the best director-general would stand the best chance of reëlection. But often this would not be the case.

25. Voters might choose the wrong managers of industry. Voters would judge a manager of industry primarily by his ability to pay high wages and to sell his product at low prices. They would be less inclined to consider more remote consequences of management, such as the consequences of inadequate appropriation for maintenance of plant and equipment, depreciation reserve, and surplus available for expansion of plant and equipment. It is likely, therefore, that political pressure would often prevent the various industries from being managed in the best interest of the people in the long run. The competent and far-sighted manager would be displaced in many

cases by the politician promising higher wages to his employees and lower prices to the consumers of his product. Eventually, when his policy brought the inevitable result of a dilapidated and inadequate plant producing at high cost an insufficient supply of goods, the politician might be ousted temporarily, but the damage would have been done, and years might be required to rehabilitate the industry.

Incidentally we should note at this point that socialism, although it removes interest as a money cost of production, does not abolish the necessity of saving — of postponing present consumption to the end that in the future more goods may be available for consumption. Under socialism people must save collectively through their government industries. The workmen must spend part of their time producing plant and equipment, and cannot spend all their time in producing goods available for immediate pleasurable consumption.

26. Wages according to needs rather than deeds. Some possible results of methods of wage determination under socialism may be noted with advantage. If wages should be paid according to needs of the workers instead of according to the value of workers' labor, various evil results might ensue. First, the costs of production might rise above the value of the product, resulting in a loss to the industry. The manager would then be compelled to raise prices, which would restrict demand and require limitation of output. Such a result could be avoided only by reducing wages of some workers who presumably get more than they need by an amount equaling the increase of the workers whose wages have been increased to meet their needs. We may put this in another way. Obviously all the workers in the aggregate cannot get in wages more than the value of the product, regardless of what their needs may be. Payment according to needs would then necessarily mean leveling down as well as leveling up toward equality of wages.

Differences in wages would then be determined mainly by the number of persons dependent upon the wage-earner's income. Men with large families would get wages higher in proportion as their families were larger than others. This would be a direct incentive for an increase in the birth rate, which assuredly is not what the world most needs to-day. In most advanced industrial countries it would be more advisable to pay people for having small families than to pay them for having large ones.

If workers were paid mainly according to the size of their families rather than according to their intelligence, training, experience, and industry, productivity of industry would be seriously reduced. This method would tend to remove the incentive for a worker either to do his present task well or to prepare himself for a more complicated task. Loafing on the job would be particularly hard to prevent, since the manager of the industry would be in danger of losing his political popularity by discharging workers, and the basis of wage payment according to needs would prevent wage reductions for inadequate performance of tasks.

27. Favoritism and corruption. Under socialism great possibilities for harm to industry lie in favoritism and corruption of the political managers of industry. Nothing except absolute equality of wage payments for all grades of workers could prevent the men with control over wage payments from playing favorites. Those whom they liked they might promote. Those whom they disliked might be kept down. With possibly no alternative employment open to them, those who were unfairly treated would have no certain recourse for redress of their grievances. The dishonest man with power would find various opportunities for turning his power into dollars. He might promise wage increases at a stipulated price. He might manipulate the books of the industry, and charge up to cost of production funds appropriated to his own uses. Naturally there would be danger of detection, but this would not prevent favoritism and corruption to the great disadvantage of the people.

28. New industries?—Taxation? A possible weakness of socialism, in addition to the weaknesses already indicated, is the possibility that new industries might not develop. Suppose that one hundred years ago all countries which since have become industrially important had adopted socialism. Would the world be enjoying now the goods and services produced by the various industries that have been established during the last century, including railroad transportation, telegraph and telephone systems, products of the great electrical industries, the phonograph, the radio, and the automobile, the great iron steamships? Possibly government enterprise would have developed these new industries, but there is room for doubt. If a socialist state is to provide for the development of

new industries it must provide funds to employ inventors and research scientists; and it must be admitted that our governments at the present time are very niggardly in their appropriations for that sort of thing.

Incidentally the socialist state would need to make many other "non-productive" expenditures just as present governments must. That is to say, it would need to provide goods and services that could not be sold at a price, — or ought not to be sold at a price, — such as lighthouses, elementary education, and the like. Our socialist state would therefore either have to tax its people just as our governments do to-day or levy a tribute on the state industries. If it taxed the people the tax system might be quite similar to the tax systems of to-day, except that there would be no business property in the hands of the people to bear a part of the burden. Taxes on incomes and on commodities and consumers' goods, such as houses and furniture, might therefore be heavier than now.

29. Guild socialism. We have now noted in considerable detail the advantages and disadvantages of one brand of socialism. It is neither possible nor necessary to take up in detail in this book the various other brands. No other shade of socialism would be likely to have greater advantages or fewer disadvantages than the possible socialist form of economic organization here outlined. Guild socialism is held by some to be distinct from state socialism. It assumes that each industry is to be taken over by the workers in that industry, and then run for the good of those workers, the former owners presumably being dispossessed without compensation for their property. There would be a number of monopolies in as many industries. Obviously there would be clashes of interest. If each monopoly were to be run in the interest primarily of its own workers, it would pay each group to restrict output and raise prices, to the disadvantage of each other group. This would have all the disadvantages of private monopoly, such as we have in some industries to-day, except that the gains of monopoly would accrue to the rank and file of the workers instead of to a capitalist owner. Some supervision and control over these clashing monopolies would have to be exercised by some central agency acting in the interest of the people as a whole. Here, then, we should come back practically to the form of organization already discussed — a supreme director or

directory, with control over the director generals or directories of the various monopolistic industries.

30. **Difficulties of socialism if price system is abolished.** If the socialist state proceeded to make further changes in the form of economic organization and the methods of distribution than those suggested in the foregoing discussion, the difficulties and weaknesses would in all probability be increased rather than diminished. If money and the price system were discarded, what could be substituted for them? How would workers be paid? How would the quantity of the various products to be turned out be determined? Would the farmers receive instructions to grow just enough wheat to make just enough flour to make just enough loaves of bread, cakes, cookies, doughnuts, gingerbread, and the like to provide everybody with just enough of these various products to satisfy his needs? Would the doctors, the dietitians, the statisticians, the economists, the engineers, and the psychologists of the socialist state be competent to determine the exact quantities of all things that ought to be produced to satisfy adequately the needs of all for everything that they ought to have, and to get these things produced in sufficient quantity with the land, labor, capital, and managing ability at their disposal, and finally to get them distributed among all the people in such a satisfactory manner that the people would not rise up in rebellion and consign all the government officials to the scrap heap? These questions will not be answered by the present writer. Let the reader inquire of the socialists how all this might be done. The questions are not here raised in any supercilious spirit, nor to cast discredit on the views of socialists, but to indicate the nature of some unsolved problems of socialism.

31. **Communism at present an impossible scheme.** Concerning communism little need be said here. The problems of communism would be like those just suggested for socialism in the preceding section. Communism proposes that all produce according to their ability, and share in the products of industry according to their needs. The communistic scheme cannot be more clearly illustrated than to liken it to the family, the income of which is more or less equitably distributed among the members in proportion to their needs, and irrespective of the earnings of the various members of the household. Communists have a pleasing vision of a nation, and

eventually the human race, as one big family, with each individual bringing home his pay check, or the goods he has produced, to be put into the common store, out of which all the members of this huge family would draw according to their needs. The probability of this plan's working well may be suggested by a mathematical formula.

Even within a small family there are quarrels and disagreements about the manner of producing the income and the manner of its disposal. The number of such possible quarrels grows much more rapidly than the number of persons in the family, since each additional member of the family may disagree with every other member. The possibility of disagreement is represented by the formula

$$\frac{X\ (X-1)}{2}$$

in which x represents the number of persons in the family.

In a family of two there is just the chance of one quarrel at a time: 2 times 1 divided by two equàls 1. But if there are 100,000,000 in the family! Theoretically, at least, each of the 100,000,000 may disagree with the views of the other 99,999,999. The total number of possible disagreements would be 50,000,000 times 99,999,999. Assuredly, with such a family there would be no place like home! If this seems like treating a serious subject flippantly, it may be added that communism as a practical solution of our economic problems at the present time cannot be treated quite seriously in a serious book. As a possible ultimate solution some hundreds of years hence it may be adopted. There is not great likelihood that it can be applied in practice until the people as a whole, working without compulsion — either legal or economic — will produce a sufficient supply of all commodities so that all may take from the common store all they need, each being left to judge largely for himself the extent of his needs. At present such a scheme would not work, because the people would produce too little and want to consume too much. Some might think that communism could be applied under a military dictatorship, the rulers resorting to compulsory labor and to arbitrary distribution of the product according to their conceptions of the people's ability and needs. The difficulties of such a task seem insuperable, and the results distasteful, even if success were possible.

In conclusion then, we may say that anarchy and communism alike are impossible. The one represents too little government and the other too much. The doctrine of laissez-faire has been abandoned as unsuited to modern conditions of industry. Socialism, while seeming to hold out attractive possibilities, has also serious drawbacks and weaknesses which make it seem not only undesirable but even dangerous. There is left only the socio-political theory of government as an acceptable basis of determining the limits of government activities.

EXERCISES

1. Enumerate five distinct theories concerning the proper functions of government, and distinguish them from one another.
2. Socialists maintain that the system of private business enterprise is wasteful. State their case against it.
3. Enumerate the fundamental causes of inequality of wealth and income under the system of private business enterprise.
4. Under socialism would there be prices? money? wages? rent? interest? profits? Why or why not?
5. Under socialism would every one be paid according to what he produced? according to what he needed? according to what he wanted?
6. Under socialism would people in the long run have a greater abundance of consumers' goods than under the system of private business enterprise? Why or why not?
7. What seem to be the fundamental weaknesses of anarchism, communism and laissez-faire?

REFERENCES

I

Carver, T. N. *Essays in Social Justice*, chapter 6.
Edie, L. D. *Economics: Principles and Problems*, chapters 36 and 37.
Ely, R. T. *Outlines of Economics* (1923 edition), chapter 30.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 56.
Marshall, L. C. *Readings in Industrial Society*, sections 390–404.
Seager, H. R. *Principles of Economics* (1923 edition), chapter 33.

II

Cole, G. D. H. *Guild Socialism.*
Gettell, R. G. *Introduction to Political Science*, part III
Readings in Political Science, part III.
Kirkup, T. *History of Socialism.*
Laidler, H. W. *Socialism in Thought and Action.*
Mill, J. S. *Principles of Political Economy*, book V.
Skelton, O. D. *Socialism; A Critical Analysis.*
Spencer, H. *Man vs. State.*
Social Statics.

CHAPTER XXXVII

THEORIES OF TAXATION

1. Increasing government activities bring increasing government expenditures. In the United States, as in other advanced industrial countries, the socio-political, or social reform, theory of government has been accepted and applied in practice, with the result that government activities have increased in number and government expenses have become very heavy. The nature of federal and state regulation of industry has been indicated in earlier chapters and need not be described here in detail. It will suffice to point out that every law providing for additional regulation of industry must provide also additional government employees to administer and enforce it, and additional appropriations of public funds to cover salaries and other expenses involved in the execution of the law. Our local, or municipal, governments, have not been backward in following the example of the state and federal governments, and have, in fact, in some cases, gone further in their socio-political activities than the governments of the states and the nation. Our cities have experimented in government ownership in a variety of undertakings, mainly in the case of city-owned waterworks, but also in city ownership of street railways, electric light and power plants, gas plants, docks, wharves, ferries, and crematories. Moreover, they have carried the policy of free education far beyond merely free elementary education; they provide free high-school education, and provide even free education of college grade, as well as free libraries, free playgrounds, free museums, and in some cases free lunches for undernourished school children. Thus they prepare at public expense thousands of young people for courses in colleges and universities that are maintained at further public expense by the various state governments.

The rapid growth of the cities brings the need for enormously costly public improvements, such as sewer systems, garbage-disposal plants, street paving, bridges, municipal buildings of various sorts, including city halls, police stations, fire-department stations, and above all an ever increasing number of public-school buildings.

2. Government expenditures will remain large. Naturally all this expansion in government activities is accompanied by a corresponding expansion in public expenditures. In 1915 the expenditures of the forty-eight States amounted to approximately $5 per capita; the expenditures of 146 of our largest cities averaged $34.50 per capita; and the expenditures of the Federal Government amounted to $7.50 per capita, or a total per capita for the persons living in these cities of $47, assuming that they all paid their "share" of state and federal taxes. This, be it noted, was in 1915, before the expenditures of the Federal Government were swelled by war costs and the expenditures of States and cities by the rising level of prices resulting from the war. During and immediately after the war these expenditures increased greatly, so that in 1921, it is estimated, total expenditures by all units of government in the United States amounted to about $80 per capita, or $400 for a family of five.[1] Since 1921 the Federal Government has pared down its expenses considerably, but States and cities, whose expenses grow out of peace-time projects, and are only indirectly affected by war, have done but little to cut down expenses, and have in some cases even increased them. New York City alone in 1925 spent about $70 per capita. The smaller cities, however, do not spend so much per person as New York City, and the average per capita expenditures for the country as a whole, including national, state, and local government, ran in 1925 at about $70, or $350 for the theoretical family of five. We cannot here discuss in detail for just what purposes these sums have been expended. But the reader should at least note that cities ordinarily spend a great deal more per capita than the state and federal governments, and that economy in public affairs, which is so often urged, can avail but little if this important fact is overlooked, as it very commonly is. Economy in state and national government, even to the point of parsimony and impairment of useful public service, means only a few dollars per capita less than a fairly liberal policy of public expenditures. The truth of this becomes more apparent when one is reminded that a very large proportion of federal expenditures is for the support of the army and navy, and for interest on debts, pensions, and other expenses representing legacies from past wars.

[1] The foregoing statistics have been taken from Jensen, *Public Finance*, pp. 35–39.

Economies in city government may be made more substantial, but since a very large part of city expenditures represents outlays for the support of the school system and for essential city improvements, there does not seem to be much reason for believing that government expenses will be greatly cut down in the future. It is doubtful whether a program of economy in public expenditures carried much beyond the elimination of outright waste and "graft" would do the country more good than harm. However this may be, expenditures of federal, state, and local governments will continue to be large in the United States, and will be more likely to grow larger than to grow smaller in the years to come.

3. Taxes are necessary. Governments that spend huge sums must necessarily obtain from some source huge revenues, or leave their bills unpaid like common deadbeats. If the activities of the government involving these enormous expenditures resulted in the production of salable goods and services, the problem of public revenue might be easily solved by charging for these goods and services an average price that covered cost of production. It is thus that private business organizations make both ends meet. But, as we have already indicated, many of the services of the government are of such a nature that the direct beneficiaries of them cannot or should not be made to pay for them. It is indeed for this very reason that such activities become the proper functions of government. It is generally presumed, for instance, that a government by maintaining an army and navy benefits every one in the country by affording protection from foreign foes. But the exact value of this protection to any particular citizen is incapable of measurement. The government and Jones, the grocer, do not come to an agreement by virtue of which, in consideration of a given price per unit, the government provides Jones with a given amount of army and navy protection for his life and his grocery store. Even if Jones, the grocer, could and would, for a certain price, order a battleship anchored in the harbor near his store, or a regiment stationed at his door, he would get no more protection than Smith, the butcher, across the street, who might be a pacifist and as such refuse to have anything to do with army and navy. If the government is to protect some of its citizens, it must protect all. Again, many people, both poor and rich, would educate their children at their own expense, but many

others either would not or could not spend enough money for teachers, schoolrooms, etc., to provide their children with the minimum amount of education that is necessary for public safety and public welfare in a democratic country. If we are to protect the educated against the votes of illiterate voters, the simplest and most desirable form of protection is a free public school system. For this reason, and for other good reasons, public schools are established and supported at great expense.

To defray the expenses involved in providing the people with various goods or services for which the beneficiaries either cannot or should not be compelled to pay as a condition of enjoying the benefit, governments must ordinarily resort to taxes. Taxes are compulsory payments made to the government by citizens for which it returns to them no particular good, or service, or exact *quid pro quo*. Each tax payer pays not in proportion to benefits conferred upon himself alone, but pays whatever the government sees fit to demand of him for benefits conferred upon the public, including himself.

4. **Government ownership and taxation.** To the extent that the government produces marketable goods or services, or is otherwise able to make a direct charge for benefits conferred upon the persons benefited, it can avoid levying taxes. Three kinds of payments may be considered under this head — prices or rates, fees, and special assessments. When a government owns and operates a postal service, a railroad, or a street railway, it has marketable services for sale, and may operate these enterprises upon the principle of a private business enterprise. Naturally, the more extensively the government is engaged in business operations of this kind, the larger proportion of its revenue it can raise by such means. But unless these enterprises are operated at a profit, they involve as much additional expense as they return in revenue, and do not, therefore, reduce the amount which the government must collect in taxes to pay for other services which it renders to the public. Let us note more closely the relation of such revenue to taxes.

In two important respects government enterprises differ from private business enterprise. In the first place, the government usually has a monopoly and is therefore able to charge a monopoly price, which may be considerably above the cost of production and

therefore a profit-yielding price. In the second place, government monopolies more often than not depart from the established rule of unregulated private monopoly, of charging the price that yields the greatest net gain, because they have in view other purposes than maximum profit. The various purposes that the government may intend to achieve by its monopoly lead to various price policies, and the particular price policy followed indicates the purpose of the government.

If the monopoly price is so fixed that it is calculated just to cover cost of production it indicates that the enterprise is operated by the government under the assumption that government operation is on the whole more desirable than private operation. If the enterprise neither makes a profit nor suffers a loss it does not affect the amount of money which the government must raise by taxation, but it reduces the number of taxpayers by removing this particular industry from the list, and thereby makes taxation heavier on the remaining private enterprises.

If the price is fixed below cost of production, the government loses money through the enterprise, and must make good this loss by collecting additional taxes from the remaining private enterprises. Such a price policy, if deliberately entered upon and not the result of incompetent management, indicates that the purpose of the government is to provide consumers with the service at less than cost in order to stimulate its use in the interest of public welfare. Losses sustained by some branches of our postal service indicate that this policy is being pursued, although on the whole the post office is not run at a great loss, and seems to be intended to pay its way. Municipal electric light and power plants and the like are ordinarily operated with the purpose of merely covering costs, and not with the intention of making a profit or of providing services at less than cost to stimulate consumption. Of course, the purpose in view is not always realized, and a loss may result.

If the price charged is considerably above cost of production, so that the government enjoys a substantial profit year after year, it may be assumed that the purpose of the government is to use the monopoly as a disguised means of taxation. Unless in this case the government profits come from management superior to private management, rather than from prices higher than consumers would

pay for the service if the enterprise were in private hands, or unless the enterprise in private hands yielded large profits, it can hardly be said that the profits of the government reduce the amount it must raise by taxation. The excessive monopoly price charged itself represents taxation by the amount it exceeds cost of production plus a fair profit. Various industrial monopolies have been used by European governments for the purpose of monopoly profits, or taxation; for example, the tobacco monopoly in France. However, the government may charge a high monopoly price, not primarily to raise revenue, but to repress consumption of a harmful product, as in the case of the alcohol monopoly in Switzerland. Which of these two purposes is the dominant one may be deduced as follows: If the price is just high enough to yield maximum monopoly gains, the primary purpose is profit. If the price is obviously higher than this, so that profit is cut down by the very high price, the primary purpose is repression of consumption.

5. Government ownership is not likely to reduce the amount raised by taxation. We must conclude from the foregoing discussion, that extensive government ownership and operation of industries is not likely to reduce the amount of money the government must raise by taxation, and may in fact increase it. Furthermore, the more industries there are operated by the government, the fewer industries there are left in private hands to bear the burden of taxation, and the higher becomes the rate of taxation on the remaining private enterprises. We must, however, qualify this conclusion by noting the possibility of the government's taking over private industries operating at a great profit, possibly private monopolies, and continuing to operate them as government enterprises, with equal or greater efficiency, at equal or greater profit, or the possibility of the government's taking over private enterprises not operating at a profit, and by greater efficiency of management making them yield a profit, without raising prices to the consumer. But there is little in the history of government ownership and operation to indicate that this qualification substantially alters our general conclusion.

6. The nature and importance of fees. Fees have been defined in various ways. A recent definition refers to them as "compulsory contributions exacted by the State to cover a part or all of the cost of doing something required by the presence and activities of a

special class, or from which the fee-payer receives or is presumed to receive a special benefit, in addition to the general benefit which is the justification for the State's performing the service." [1]

From this definition it might appear that fees are like taxes in being compulsory, and like prices or rates in that the payer gets a special service from the government when he pays the fee; and in general this is true. Yet the element of compulsion in some kinds of fees is not much, if any, greater than in some kinds of prices. The government, for example, has a monopoly of the postal service, and also of issuing marriage licenses. If one mails a letter he must perforce buy a stamp from the government — and if one gets married he must pay a fee for a marriage license obtained from the government. One need not, of course, mail a letter, and neither need one get married, so in neither case is compulsion absolute. Again, a dairyman who pays a fee for having his herd inspected — against his will, perhaps — and then has half his dairy cows slaughtered to his great loss, may feel that his direct benefit from the service is rather small, or possibly nonexistent. But we need not linger here over niceties of definitions. It will suffice for our purpose to note the general nature of fees and to point out their place in a system of taxation. They have played no inconsiderable part in our economic and political history, and have been used particularly as a convenient means of paying the salaries of public officials, such as county assessors, clerks, sheriffs, constables, jailors, customs and consular officers, inspectors, and the like. The total amount of fees collected by federal, state, and local governments in the United States aggregates tens of millions of dollars annually. The exact amount is unknown because no accurate records of such payments are kept by all governments. We may say, however, that as compared with receipts from taxation, fees constitute a minor source of revenue.

Because of abuses that accompanied the fee system as a method of paying public officials for their services, it has become customary to pay nearly all these officials stated salaries, and to turn the fees into the form of cash revenue for the government along with taxes. Fees are in fact merely one form of taxes, particularly when they more than cover the cost of the service rendered, and will continue to be collected for the reason that they are a very convenient form,

[1] Jenson, *Public Finance*, p. 112.

and fit in with a great practical maxim of taxation — political expediency. Since the government needs the revenue, why not collect as much as possible from persons who at the time of payment receive a benefit that takes some of the sting out of the necessity of paying? Because men are less likely to grumble at governments if they receive some sort of benefit when they pay government expenses than when they receive no direct benefit, we may expect to continue paying fees for such services as having deeds recorded, marriage licenses issued, trade marks registered, and the like, and in many cases paying more than it costs the government to provide the service.

7. Special assessments; a satisfactory form of revenue, but subject to abuse. Special assessments represent a particular kind of fee, but they are so important that they are put in a class by themselves by writers on public finance. They are payments made to the government by owners of real estate to cover part or all of the costs of public improvements which may be presumed to increase the value of the property by more than the amount of the assessment. Paving a street, for instance, may increase the value of each lot facing that street $1000, while the total cost of paving may not exceed $500 per lot. There results a clear gain for the property owners even if they pay the whole cost of paving, and in addition there is a gain for the public, which enjoys the use of the paved street. In such cases, however, the city may assume part of the cost, particularly the cost of paving street intersections. Often special assessments are in the nature of voluntary payments, the property owners mutually agreeing to have the improvement made, and asking the city to undertake it. But sometimes the property owners may be compelled to pay for improvements which they do not desire either because they find it inconvenient to pay or because they consider the improvement worth less than the cost.

On the whole, special assessments are a most satisfactory form of revenue — a painless form of taxation; they give the payer value received and provide the public with costly improvements at small expense. But when property owners are assessed for improvements that do not improve, or increase, the value of their property, special assessments become a most unjust and discriminatory form of taxation. Examples of this sort are not uncommon, and grow out of

either unwise projects or unscientific distribution of assessments. For instance, a certain farmer was assessed $1 an acre on his land as his part of the cost of paving a mile of road from a certain small city in Kansas, which we shall call A, to another small city, which we shall call B. But this farmer's most direct road to A did not run through B, nor did his most direct road to B run through A. Therefore he rarely used the mile of road between A and B, and whether or not it was paved was a matter of indifference to him. In this case, as in many other cases, not only was the property abutting on the improved road assessed but other property within a certain distance was also assessed, at a lower rate, under the assumption that it was somewhat increased in value by the improvement.

8. Canons or principles of taxation. Aside from the problems presented by dishonest or incompetent public officials, no grave problems arise in connection with the payment of prices or rates, fees, and special assessments. For such payments the payer usually receives a special benefit which represents a full equivalent for the sum he pays. There may be differences of opinion in respect to the extent of the government's activities, but in so far as these activities are paid for by prices, fees, or special assessments, the payers are treated more or less alike, and discrimination is the exception rather than the rule. Comparatively few have reason to complain of injustice — of being compelled to pay more than their rightful share. It is in connection with the payment of taxes that the gravest problems in public finance arise.

It is not difficult to lay down general principles or canons in accordance with which tax laws ought to be framed. Adam Smith's canons of taxation, although laid down a hundred and fifty years ago, are still much quoted, and have not been excelled. According to Smith, taxes ought to be levied in accordance with the principles of equality, certainty, convenience, and economy. Obviously these are good principles with which every one ought to agree. Consider them briefly. Provisionally let us assume that taxes are levied in accordance with the principle of equality or justice when no one pays either more or less than his fair share of taxes. By certainty is implied that the amount, the time, and the manner of payment ought to be made clear to the contributor. It is obvious that if these things are not made clear and plain the taxpayer is not only

unable to arrange his business affairs to pay the tax, but he may also be left to the mercy of dishonest tax collectors, who may take from him any sums that they see fit to demand. By convenience is implied that the time and place of payment should be arranged as far as possible to suit the convenience of the taxpayer. He should not, for instance, be compelled to journey long distances to pay his taxes when he might just as well make the payment at an office near his home, or be compelled to make such large lump sum payments at some particular time as to disrupt his business. By economy Smith meant that "every tax ought to be so contrived as both to take out and to keep out of the pockets of the people as little as possible over and above what it brings into the public treasury of the State."

Surely no right-minded person having public welfare at heart, would urge that taxes be levied otherwise than in accordance with these principles: that they be levied, instead, according to the canons of inequality or injustice, uncertainty, inconvenience, and extravagance. Yet in actual practice our systems of taxation unfortunately often approach the second set of principles more nearly than the first. Various causes contribute to this result, including the selfishness, dishonesty, and ignorance of both public officials and taxpayers. Even if all public officials and taxpayers were unselfish, honest, and well-informed, it would still be difficult to bring the system of taxation into conformity with Smith's canons, partly because there is some conflict among those canons themselves, and partly because there are differences of opinion in respect to the kinds of taxes that would most nearly conform to the various canons, particularly the canon of justice. To illustrate, the most economical tax may not be the most convenient, or the most just, and what for good reasons seems to one person to be justice in taxation may for apparently equally good reasons seem to another to represent injustice.

In the United States, as in other advanced countries, certainty and convenience in taxation are fairly well achieved, because they do not conflict seriously with other principles of taxation, and because comparatively few people have any selfish interest to serve by making taxes either uncertain or inconvenient. But it is otherwise with justice and economy, which may be in conflict with each other, and in conflict with two other principles of taxation that are not

included in Smith's four canons — namely, fiscal adequacy and political expediency. And in respect to justice, many persons have a selfish interest in throwing that canon overboard.

9. Justice in taxation. Most of the discussion of taxation centers around the two questions of how much money ought to be raised by taxation and how the burden of taxation ought to be distributed among the people. Since the amount of money that must be raised by taxes depends upon the cost of the services performed for the people by the government without charge or at less than cost, this question is one largely of the proper functions of government, a subject discussed in the preceding chapter. The question of the amount of money that must be raised by taxation is, however, closely related to the question of the distribution of the burden among the people, by reason of the fact that the larger the amount grows, the greater becomes the proportion of the burden that must necessarily be borne by those having the greatest ability to pay — the rich. Not only is there this necessary relation, but there is the further relation that those who advocate a wide range of activities for the government in the interest of public welfare are usually of the opinion that it is in the interest of public welfare to tax the rich more heavily than the poor, in order to promote a greater degree of equality in wealth and income. The question of justice in taxation is therefore an important one, and it is well worth while to consider according to what principles taxes should be levied upon the people in order to achieve justice in the distribution of the burden; or, in other words, to compel everybody to pay his fair share.

It will be convenient to begin with Adam Smith's statement of what constitutes equality or justice in taxation. Smith stated in one of his much-quoted four canons of taxation that "the subjects of every State ought to contribute toward the support of the government as nearly as possible in proportion to their respective abilities; that is, in proportion to the revenue which they respectively enjoy under the protection of the State." [1] The reader may note that in this canon both ability to pay and benefit, in the form of revenue enjoyed under the protection of the State, are named as proper bases for taxation. One may conclude that Adam Smith believed that a man's ability to pay taxes varied directly in proportion with his in-

[1] *Wealth of Nations*, book v, chapter 2.

come, and therefore in proportion with the benefit he received from the government whose protection made his income possible. One must bear in mind in this connection that in Smith's day the activities of the government were nearly all concerned directly or indirectly with the function of protecting the life and property of its people.

Since the time of Adam Smith there has been some controversy between those who hold that taxes should be levied according to benefits received from the government, and those who believe that taxes should be levied according to ability to pay; and these two theories of taxation have been held to justify differences in the distribution of the burden of taxation. Both parties to the controversy are able to quote Smith in support of their respective theories. Let us note the implications and the difficulties of the two theories, and see which of the two can be the more readily applied in practice.

10. The benefit theory not workable in practice. Under the benefit theory taxpayers would pay roughly in proportion to the benefits which they receive from the government. If the government did nothing except protect life and property, it would be a reasonable assumption that all citizens benefited equally in respect to protection to life, and benefited from protection to property in proportion to the amount of property that they owned or the income that they received. It might be held, therefore, that equality or justice in taxation would be achieved when each citizen paid a uniform capitation tax, to pay for protection to his life, and in addition a property tax based upon the amount of property he possessed, or an income tax based upon the amount of income he received.

Even under these simplified conditions there would be abundant room for controversy. Does the poor man receive more or less benefit in the way of protection to life than the rich man? One might argue that the rich man is amply able to protect himself by hiring armed retainers, but that the poor man would have to depend upon himself alone. Another might argue that no one is likely to rob or kill a poor man, whereas the rich man is in constant danger of being robbed or killed. Then, the argument might be advanced that a bachelor receives protection for only one life, his own, but a married man with ten children receives protection for twelve lives, and should therefore pay twelve capitation taxes as against the bache-

lor's one—and it would be difficult to refute this argument. Then there is the question of whether benefit is measured better by the amount of property owned, or by the income received, or whether perhaps both together represent a better measure of benefit received than either one alone. Concretely, does a landowner with an annual income of $10,000 from $200,000 worth of land receive the same benefit as a doctor with an income of $10,000 from his practice, or does he receive more, and if more, how much more?

Here are indicated some of the difficulties of applying in practice the benefit theory of taxation, though these alone are not any greater than similar difficulties encountered in applying the ability theory, as we shall see in a moment. But there are some difficulties that seem insuperable. Under modern conditions the government does much more than protect life and property. It undertakes to provide the people with goods and services which many cannot pay for and so would not enjoy, except as a gift from the State. The poor cannot or will not, for example, pay the full cost of properly educating their children. It is precisely for this reason that we establish public schools. Now according to the benefit principle, people would pay taxes in proportion to the number of children they had in school—and the poor have more children per family than the rich. There are other similar cases. Here, then, we find the advocate of the benefit theory in a dilemma. He would have the poor pay for the full cost of educating their children in the schools established by the government because the poor cannot pay for the full cost of educating their children. He might try to save his theory by the assumption that the rich benefit more from the education of the children of the poor than do the poor themselves, and may therefore pay the taxes that support the schools. Similarly, he might reason that people outside of the poorhouses benefit more from supporting paupers than the paupers benefit from being supported, but this draws the argument out rather thin.

We must conclude that under a government which applies the socio-political theory of the proper functions of government, as practically all governments do to-day, the benefit theory of taxation is untenable. As a means of achieving abstract justice possibly a case can be made out for it. But as a basis of taxation to achieve the present aims of government it is inadequate, and must be aban-

doned. If taxation according to benefits conferred means justice, then we of the twentieth century may say with the old offenders before the judge in court: "Justice is the last thing we want."

11. **The ability theory; Is ability to pay measured by income?** The ability theory of justice in taxation is a more workable theory, but it has some difficulties of its own. First we have the problem of finding the proper measure of ability to pay, and second we have the problem of deciding whether or not the ability theory should be unflinchingly applied once the proper measure of ability is logically determined. Since all taxes, except inheritance taxes, are ordinarily paid out of income, either directly or indirectly, and since it is ordinarily the intention of the government and to its best interest that they should so be paid, we may consider the question of ability to pay in relation to income enjoyed. Every one would agree that generally speaking one's ability to pay taxes is closely related to the size of one's income, but every one will not agree that the ability of taxpayers to pay varies directly in proportion to their respective incomes. More concretely, there are some who hold that Grey's ability to pay may be less than Brown's, although they have incomes of the same size, and that Grey's ability may be less than half that of Jones, although his income is fully half as large. The reasons for this point of view we may bring out by answering the following three questions:

(1) Do all kinds of incomes of the same size represent equal ability to pay?
(2) Do all men with equal incomes of the same kind have equal ability to pay?
(3) Does any particular man's ability to pay increase directly in proportion to his income?

All reasonable men can agree upon the answers to these three questions, regardless of their theories of the proper functions of government. In all three cases the logical answer is no. Let us see why.

12. **All incomes of the same size do not represent equal ability to pay.** Consider first the question, "Do all kinds of income of the same size represent equal ability to pay?"

Grey has a salary of $2000 a year, and no other income; Brown has a salary of $1000, and receives an income of $1000 a year from a farm that he owns, worth $20,000. Grey and Brown, therefore, have

equal incomes, and will have, let us assume, so long as both retain their positions. Grey, having no accumulation of property, must save part of his income for old age, or to provide for his dependents — let us say $500 a year. This leaves him $1500 a year on which to support himself and his family. Brown figures that his $20,000 farm with its income of $1000 provides him with ample security against want in old age, and he can therefore spend his whole $2000 income. Now it is obvious that Brown's ability to pay taxes is greater than Grey's. We must conclude, then, that incomes of the same size, if different in kind, do not always represent equal ability to pay, and that if we proceed to tax all kinds of income at the same rate, we are not applying the ability theory of taxation. This fact is now generally recognized, and in drafting income tax laws provision is often made to tax "earned" incomes at a lower rate than incomes from property. This is referred to as the principle of "differentiation."

13. All men with equal incomes of the same kind do not have equal ability to pay. Consider next the question, "Do all men with equal incomes of the same kind have equal ability to pay?"

Black is an unmarried man, and earns $2000 a year, on which he lives very comfortably. He has no other income. Blue also earns $2000 a year, and has no other income, but has a wife and ten children, the children all being under fifteen years of age. He finds it quite difficult to pay his rent and his grocery bill, and to keep himself and his family in clothes. Proper medical and dental attention for his children would alone require five to ten per cent of his wages, but this, like many other things he ought to have, is beyond his means. Obviously his ability to pay taxes is less than Black's. Married men with families to support have less ability to pay taxes than single men with equal incomes of the same kind.

Income tax laws usually take this fact into consideration by taxing persons with dependents somewhat less heavily than persons without dependents. This is ordinarily accomplished by the "principle of exemption." That is to say, a certain part of a married man's income is free from taxation, and the amount of income exempt increases with the number of dependent children. If incomes below a certain size are not taxed even in the case of single men, as is usually the case, then the married men enjoy a somewhat higher exemption than others.

14. Ability to pay increases more rapidly than income. Turn, now, to consider whether or not one's ability to pay taxes increases directly in proportion to one's income. We have already indicated that it does not. Ability to pay increases more rapidly than income. If one man has an income of $1000, and another an income of $100,000, the first does not have one per cent as much ability to pay as the second. If, for instance, the rate of taxation were ten per cent of the income in both cases, the first would pay $100 in taxes, and have $900 left for himself, and the other would pay $10,000 in taxes and have $90,000 left for himself. Obviously a man with $90,000 has more ability to pay taxes than a man with $1000; therefore, the rich man has more ability left to pay after he has paid his ten per cent than the poor man has before he has paid anything. The fact that ability to pay increases more rapidly than income is now usually recognized in income taxes by making the rate higher on large incomes than on small incomes. This is referred to as the "principle of progression."

15. Startling results of the ability theory unflinchingly applied. The ability theory of taxation, as we have shown, justifies a higher rate of taxation on income from property than on earned income; heavier taxation of men without dependents than of men with dependents, their incomes being the same; and a higher rate on large incomes than on small incomes. It justifies, in other words, differentiation between earned income and other incomes, exemption for dependents, and a progressive rate that taxes large incomes more heavily in proportion to their size than small incomes.

We have not up to this point considered the further question, of the degree of differentiation, the amount of exemptions, and the rate of progression required to apply the ability theory in a thoroughgoing way. When we consider this subject carefully we arrive at startling conclusions. Begin, for the sake of convenience, with the assumption that two men have incomes of the same kind, and are in the same position with respect to dependents, but that one has an income of $10,000, and the other an income of $100,000, and try to arrive at a logical conclusion through deductive reasoning as to their respective abilities to pay taxes. There is good reason for assuming that as long as the one has more income than the other, he has more ability to pay taxes. It follows that a man with a $100,000

income can afford to pay $90,000 in taxes better than one with a $10,000 income can afford to pay $1, since after he pays $89,999, he still has $10,001 left, which is more than the other man has, and therefore still represents greater ability to pay, by the amount of $1.

This example points clearly to the rate of progression, the rate of differentiation, and the amount of exemption, that the strict application of the ability theory of taxation requires. Our starting point is the total amount of money to be raised by taxation. This being determined, we begin to collect it from the men with the highest range of incomes, say incomes in excess of $1,000,000, taking, let us say, all the income these men have in excess of that amount, with the exception of making some allowance for earned income and dependents. If the revenue thus yielded is not enough, we tap the incomes lower down, taking that part of all incomes in excess, say, of $900,000, or possibly $500,000, or if necessary all that part of all incomes in excess of $10,000. In no case should we tax any one who has a smaller income before being taxed than any one else has left after being taxed. In other words, we should arrange all incomes in order from the lowest to the highest, and then we should chip off what revenue we need from the highest, leveling down as far as necessary to get what revenue we require.

Leaving out of consideration modifications concerning earned incomes and dependents, an income tax framed according to the ability theory would be quite simple, reading, for example, as follows:

"Every individual shall pay in taxes that part of his income in excess of $10,000, and no one with an income not in excess of $10,000 shall be required to pay any income tax."

This general provision would, however, have to be modified in accordance with the principle of differentiation and exemption, so that those having only earned incomes and those having dependents would not be taxed so heavily as those having incomes from property and those not having dependents. For example, if all income in excess of $1000 is to be taken in taxes, this would refer only to all income in excess of $1000 received by those having income from property, and having no dependents. Grey, of our earlier example, with an income of $2000, all earned, needs to lay aside $500 for old age. Brown, with an income of $2000, of which $1000 is from property, needs to lay aside nothing more for old age. Accordingly

we take all of Brown's income in excess of $1000, but only half of Grey's income in excess of $1000. This leaves both of them with $1000 to live upon. This assumes that neither has any dependents. If, now, in addition to having to save $500 a year for old age, Grey has two small children dependent upon his salary, and it costs him $500 a year to support them, we cut down his tax by an equal amount. This leaves him no tax to pay.

16. Why a man with $100,000 has more ability to pay $90,000 in taxes than a man with $1000 has to pay $1. Some might take exception to the reasoning here employed. They might hold, for example, that the rich man with an income of $100,000 a year does not have more ability to pay additional taxes after he has already paid, let us say, $90,000, than the poor man with an income of $1000, who has paid none, in spite of the fact that the rich man would still have $10,000 untouched by the tax collector, as against the poor man's $1000.

It might be urged that after the rich man had given up ninety per cent of his income, an additional sum taken from him would mean a greater sacrifice for him than the first few dollars would mean for the poor man. To carry out the leveling-down program unflinchingly would deprive the rich man of many things to which he had become accustomed and would interfere with his whole manner of living. To take from him $99,000 would leave him relatively much worse off than the poor man, although each had still the same income. That is perfectly true, but it is true only because the rich man has become accustomed to a luxurious standard of living. But this would be merely a temporary result. If the tax remained in effect, the rich man would gradually become accustomed to a less extravagant style of living and would no longer feel the sacrifice so keenly. Just as custom and habit extending over several years make luxuries seem necessaries, so in several more years they may make what were once apparent necessaries seem luxuries with which one may dispense quite easily. Fundamentally the conclusion we reach above is not shaken by this particular argument. So long as any man has more than a given amount of income untouched by the tax collector, he has more ability to pay additional taxes than any man who has less, regardless of how much either has already paid, making due allowance for differences between earned and unearned income, and for dependents.

17. Why the ability theory ought not to be applied in a thoroughgoing way. Now, taxation according to the ability theory thus unflinchingly applied would strike most people as unjust and absurd. Whether or not it would be so we need not stop to consider. What is more to the point, so far as we are here concerned, is that it would be unwise and inexpedient. It would assuredly have various undesirable results.

The poor — that is, the great mass of the people — would under this system be almost entirely, or quite, exempt from taxation. They would thus be in a position, at least temporarily, to enjoy all the benefits of government with little or no direct sacrifice of income. They would thus tend to favor a wide extension of government activities, and broader benefits to themselves, including such things perhaps as free transportation, free houses, and free meals. They would seem to have nothing to lose and everything to gain by heavier taxation and greater public expenditures. The burden of taxation would tend to grow heavier and heavier, until the tax collector would begin to level incomes down so low that the majority of the voters would feel the burden. This might bring a halt.

Meanwhile the heavy burden on the rich would have tended to play havoc with business enterprise, since most of the new capital put into business comes from the incomes and savings of the wealthier classes. The rich would have little to invest to expand their business. Furthermore, they would have little incentive to make a success of their enterprises, knowing that all income except a moderate sum, or at least all above a certain sum, would be taken by the tax collector. In the end the poor as well as the rich might be ruined by such a method of taxation, through the dissipation of the capital of the country.

18. Ability theory may be made the basis of differentiation, exemption, and progression. We cannot with good results apply the ability theory in the thoroughgoing way suggested, but we need not on that account abandon it altogether as affording a satisfactory basis of taxation. The ability theory justifies our three principles of differentiation, exemption, and progression. These principles should therefore be applied in practice, but not so rigorously as to defeat their very purpose — the improvement of social conditions. To tax income from property more heavily than earned income is quite

proper. But to tax it so much more heavily that accumulation of property is discouraged is against sound public policy. To tax men with large families more lightly than men with small families, or no families, is desirable; but to make the difference so great as to encourage the rearing of large families is socially inexpedient. Until we find some better way of putting a curb on the growth of population, it is well to let the burden of large families rest heavily upon those who are responsible for them. To tax the incomes of the rich at a considerably higher rate than the incomes of the poor is not only humane, but socially desirable, within reasonable limits. But beyond a certain limit, which is a debatable one, we should not go. It does not seem possible by deductive reasoning to arrive at the exact degree of discrimination in taxation that will give the best results. That is a matter which can be determined, if at all, only by experimentation. Incidentally we may remark that advocates of taxation directly in proportion to income received, criticize any kind of progressive taxation on the grounds that once you depart from exact proportionality, you are adrift in the sea of taxation without rudder or compass. To this we may answer that so long as we manage to drift approximately in the right direction it is better to drift than to sail, equipped with rudder and compass, in the wrong direction.

19. Plucking the goose with the least amount of squawking. Both the ability theory and the benefit theory of taxation represent an attempt to achieve justice in taxation. But, as we have seen, the benefit theory cannot be applied in practice under modern conditions, and the ability theory cannot be applied without serious modification. It does not seem possible, in fact, to find a workable theory of taxation that achieves exact justice for all classes of the population. A modified ability theory approaches the ideal of justice as nearly, perhaps, as any other theory. But there is a narrower sense in which we should certainly strive for justice. Under similar circumstances and conditions, all persons with incomes of the same size of the same kind, ought to pay the same amount of taxes. This sort of justice may be roughly attained under a good system of taxation, and any great departure from it is an abomination. Of such abominations we in the United States have plenty.

There is one interesting theory of taxation which would not even attempt to achieve justice but would make its guiding principle

political expediency. Governments, according to this theory, would collect their taxes in such a way as to cause the least opposition, or as it has been aptly put, they would pluck the goose with the minimum amount of squawking. This rather cynical theory has not a great many open friends, but there are many politicians who love it in secret. One might say that a variation of this theory is to pluck the geese that can put up the least successful resistance. These may be either the rich or the poor, depending upon the nature of the government in power.

20. Can we tax posterity? The question of justice is sometimes debated in respect to the proper distribution of the burden of taxation between the present generation and posterity. This is particularly likely to receive attention at times of unusually heavy expenditures, as in war-time, or when expensive public improvements are being made, such as paved roads. It is then often urged that posterity as well as the present generation has been benefited by these expenditures and should be compelled to share the burden. It is commonly assumed that posterity can be made to pay its fair share of the burden if part of the cost is met by means of government bond issues instead of by taxation. If the bonds are long-term bonds, taxpayers of later generations will continue to pay interest on them until they mature, and will be compelled to pay off the principal of the loan when it becomes due.

Now, while it is perfectly possible to make taxpayers of future generations pay interest on bonds and the principal when it becomes due, it does not follow that posterity is thus made to bear the burden of the war, or the public improvement, or what not, and that the present generation is freed from the burden. We should bear in mind that roads are paved with concrete, bricks, asphalt, and the like, in the production of which posterity gives us no aid. Wars are fought with guns and ammunition, and other war materials and supplies, and these do not come from posterity. The assumption that bond issues throw upon posterity the burden of providing these things for us is based upon the shallow thinking on economic questions that is common among people who have not made a systematic study of economic principles.

Let us consider, now, under what conditions, if at all, posterity can be made to share the burden of present expenditures by means

of borrowing, or bond issues. When we borrow from, or sell the bonds to, our own people, and use the proceeds to buy goods and services in our own country, we do not pass the burden on to posterity at all. The whole burden falls upon the present generation. In this case, the government obtains money from the sale of the bonds, and with this money buys the materials, supplies, labor, and so on, that it requires for carrying on its enterprise. This reduces by just so much the materials, supplies, labor, and so on, left available to supply the present generation at the present time with the various goods and services it may enjoy. What the government uses in prosecuting its activities cannot of course also be used by the people for their own purposes. If the government should raise its money by taxation, in the same amounts, the resulting burden on the people would be the same, no greater and no less. The more money the government raises, and the more things it buys up out of the total available supply, the less is left for the people. Now, since governments can ordinarily raise greater sums by borrowing than by taxation — because people would rather lend to the government at interest than to give up money in the way of taxes — borrowing tends to increase the amount which the government has available for spending, tends to increase the total quantity of goods and services which it may use for government purposes, and tends, therefore, to reduce the amount of goods and services available for the people for other than government purposes. It makes possible, let us say, the building of state capitals and the paving of roads on a more extensive scale than could be financed by taxation. These permanent improvements are built wholly at the cost of the present generation, but remain for posterity to enjoy. Borrowing by means of long-term bond issues, far from throwing a part of the burden on posterity, then, merely tends to increase the burden on the present generation, which is thus deprived, for the benefit of future generations, of enjoyable goods and services. This may be not an undesirable result, but we should not deceive ourselves into thinking that posterity has supplied the building materials and labor which we have sacrificed for posterity.

But, one may ask, what about those interest payments on the bonds and the principal that must be paid at maturity? Certainly, it may be urged, posterity does pay them. Quite true, taxpayers

of future generations must meet these payments. But note that the payments are not made to us who have sacrificed and labored that the improvements might be made or the war fought successfully. Posterity makes these payments to itself! And what it pays is just balanced by what it receives. Among the people of the next generation are some so fortunate as to have inherited government bonds from their fathers, and to have interest payments and principal falling due, and others, less fortunate, who must pay taxes to meet these payments. But all these accounts are settled among the people then living, and none of the payments are made to the dead.

21. One possibility of making posterity pay. When we sell our government bonds to people in foreign countries, and with the money received for them buy materials, supplies, labor, and so on, in these foreign countries, it is possible to pass the burden on to posterity. It is obvious that these goods and services thus bought by our government do not come directly out of our own stock and do not therefore necessarily reduce the quantity of goods and services that our people of the present generation have available for their own use. If, now, the future generation of our citizens must pay the interest on those bonds and the principal when it becomes due, and can do so only by exporting to those foreign countries goods and services which otherwise they would be able to use and enjoy themselves, we have succeeded admirably in throwing the burden on posterity.

It is well to note, however, that whereas our present generation thus gains at the expense of our future generations, in the lending country the reverse is necessarily true. Those people give up present goods which they might enjoy themselves in return for goods to be paid to their descendants in the future. It follows that not all countries can borrow from one another at the same time, and thus all manage to throw the burden of present costs on future generations. This point is of more particular interest, perhaps, in respect to the borrowing of our local governments, which are generally assumed to be throwing the burden of their public improvements, such as water works, city halls, paved streets, etc., on posterity, by paying for them with bond issues. But, while one city might succeed in thus relieving its present generation of the burden, at the expense of its posterity — more numerous than the present generation it is

generally hoped, and therefore better able to pay — not all cities can do this at the same time. Undoubtedly, taking the country as a whole the present generation pays for these improvements, and posterity when it arrives may rest quite satisfied with the situation.

It does not follow that bond issues should not be resorted to, if they are issued for good purposes. They are useful financial devices, and in particular cases permit improvements to be made which ought to be made, but which, without bond issues, would have to be deferred. That on the whole they increase the burden on the present generation rather than decrease it, need not condemn them. If they lead to greater permanent improvements of a productive kind than we should otherwise have, they are but means to the accumulation of capital, by cutting down our expenditures for present goods and increasing our expenditures for future goods; and this on the whole is in the interest of public welfare in the long run. Only, let us bear in mind, posterity may some day laugh at us for being so simple as to assume that it shared in the burden of fighting wars and making improvements before it was born.

EXERCISES

1. It has been held by some writers that taxes should be paid in proportion to benefit received from the government. Could this theory be applied in the United States at the present time by federal, state, and local governments? Why or why not?
2. Do incomes of equal size represent equal ability to pay taxes? Why or why not?
3. In a certain community there were 100 taxpayers, 90 of whom had incomes of $2000, while the other 10 had incomes of $10,000. The $10,000 incomes were all derived from property, and the ten rich men had no dependents. Of the 90 small income receivers, 10 received half of their income from property, but had no dependents; 10 others had no dependents and received no income from property. The other 70 small income receivers had no income from property, and each had a wife and children whose support cost $1200 a year. It was necessary to raise $120,000 by taxation of incomes. How much ought each taxpayer to have paid according to a strict application of the ability theory?
4. In the recent war many prominent citizens maintained that the war should be financed in large part by bond issues so that posterity would be made to share the burden. Discuss the soundness of their views.
5. When prices rise during a war, the money cost of the war rises in proportion. Taking this into consideration, which is the cheapest method of financing a war: issuing credit money; issuing government bonds; or raising money by taxation? Which is the dearest method? Why? Assume that the credit money is finally to be redeemed in gold.

For "References" for this chapter see end of Chapter XXXVIII.

CHAPTER XXXVIII

THE TAX SYSTEM OF THE UNITED STATES

1. The tax system as a whole ought to apply the principles of progression, differentiation, and exemption. As indicated in the preceding chapter, the ability theory of taxation justifies the principles of progression, differentiation, and exemption. That is to say, if we desire to tax people according to their ability to pay, we must take a larger percentage of the incomes of the rich than of the incomes of the poor, increasing the rate of the tax more or less regularly with increase in income; we must tax earned incomes at a lower rate than unearned incomes; and we must exempt a stated part of a man's income because he is married and has a family to support.

The ability theory, as we have seen, if followed to its logical extreme, would lead to such a high rate of progression, such a high degree of differentiation, and such great exemptions, that the results would be socially inexpedient. But nevertheless it indicates that the principles of progression, differentiation, and exemption, modified by common sense and prudence, ought to be applied in practice both in the interest of justice and in the interest of social expediency.

Therefore, if we had no other tax, but collected all our revenues by means of a single income tax we ought to apply those principles, taxing the poor less heavily than the rich, and the incomes from wages, salaries, and professional earnings at a lower rate than the incomes from property, such as rent, interest, and dividends; and we ought to let off more lightly those having dependents to support than those without dependents.

If instead of having a single income tax we have a variety of taxes, we ought so to contrive to combine the total tax payments of the various persons taxed that those persons would still in the aggregate, taking all their taxes into consideration, be taxed in accordance with the principle of justice, modified by the principle of social expediency. We ought, in other words, to apply, as far as possible to the tax system as a whole, the principles of progression, differentiation, and exemption. Injustice through one form of taxation, if

inevitable, ought to be offset if possible by some other form of taxation.

2. All tax systems have been developed largely in accordance with the principle of political expediency. Although it is usually the intention of the government, and to its best interest, that all taxes — except possibly inheritance taxes — should be paid out of income, there is no country that levies no kind of tax except an income tax. In all countries there is a more or less confusing jumble of taxes, including taxes on property, on business, on commodities, on incomes, on inheritances, and so on. Instead of having a single income tax, then, we have in all cases various taxes constituting a tax system. The tax systems of all countries have been developed, at least until quite recent times, more in accordance with the cynical principle of political expediency than in accordance with the principles of justice or equality, which often comes in conflict with political expediency with more or less disastrous results to itself. The principles of certainty, convenience, and economy have fared better than the principle of justice, or equality, because they are in less direct opposition to political expediency, but they have not been, and are not at present, always observed. Justice in taxation has not been absolutely neglected, but has been observed so far as the ability and the best interests of the governing group have permitted. Since in most ages of the world the poor have been least able to defend themselves against being made to bear more than their fair share of the burden of taxation, departures from justice in taxation have usually favored the rich and powerful. In extreme cases those most able to pay have even been given a considerable degree of exemption, as in the case of the nobility and the clergy before the French Revolution. During the 19th century, however, there developed a noticeable trend toward shifting the burden of taxation to the shoulders of those more able to support it — the rich. This trend represents in part a conscious effort to achieve a greater degree of justice in taxation. But we must not therefore conclude that the principle of political expediency has ceased to be powerful enough to triumph over justice. With the growth of democracy it has become politically less expedient to tax the poor with undue severity, so that justice and political expediency are for the time being not diametrically opposed to each other.

3. Avoidance, evasion, and shifting of taxes. Even if a country had only one form of taxation — the income tax — it would be difficult enough to determine how nearly justice would come to being achieved, or how nearly it would be socially expedient to approach the ideal of justice — that of making every one pay his fair share and no more. It may be that we should fail to secure the best possible distribution of the burden because we should fail to apply properly the principles of progression, differentiation, and exemption. Furthermore, there would be possibilities of avoiding, of evading, and of shifting the taxes levied, so that even if we did apply the right principles in the best possible way, there would still arise inequality and injustice, because some would manage better than others to avoid or evade or shift the burden. But when a country has a confusing jumble of taxes of various kinds the difficulties of achieving a fair distribution of the burden are greatly increased, since some of these taxes fall on some persons, and others on others, and some fall on various persons in a most unequal way. Furthermore, no one knows what others pay, and indeed few know what they themselves pay. Even those who make the laws and those who enforce them would often be unable to say offhand whether the poor pay to the government in taxes a larger part or a smaller part of their incomes than the rich.

The terms "avoiding," "evading," and "shifting," as applied to taxation ought perhaps to be briefly explained before we proceed further with our discussion of systems of taxation. A person may be said to avoid a tax when he does not place himself within the conditions under which the tax is payable. For example, if a tax of a dollar a yard is imposed on the importation of woolen cloth one can avoid the tax by not importing woolen cloth.

A person is said to evade a tax when, although he has placed himself within the conditions under which the tax is payable, he manages to escape payment either by deliberately deceiving the tax officials or through the ineffectiveness of the tax administration. For example, a man may evade the payment of import duties on diamonds he imports by concealing them in the heel of his shoe.

A person is said to shift a tax when he pays the tax imposed but manages to pass the burden on to some one else, as when a sugar importer pays a tax of one cent a pound on sugar imported, and then adds this cent to the price at which he sells the sugar.

Evasion of taxes is illegal, and if discovered subjects the evader to more or less severe penalties. But avoidance and shifting of taxes are not only not illegal, but are often the very intent of the law that gives rise to avoidance or to shifting.

Let us now consider briefly the chief kinds of taxes imposed by our federal, state, and local governments, and note to what extent they may individually be avoided, evaded, or shifted, and how nearly they approach the ideal of compelling every one to pay his fair share and no more of the taxes collected, and how well they measure up to the canons of certainty, convenience and economy.

4. Import and excise taxes. Up to 1913 our federal taxes consisted almost wholly of customs duties, or taxes on imports, and excise duties, or taxes, levied on the manufacture and sale of a few selected commodities, mainly on liquors and tobacco. Such taxes are commonly called taxes on commodities. Excise duties are also commonly referred to as internal revenue duties to distinguish them from customs duties. The chief point of interest in connection with import and excise duties is that these taxes are usually shifted in whole or in part. In fact it is usually the intention and the expectation of the government that they shall be shifted, and for this reason they are properly called indirect taxes. New York importers of woolen cloth from England may, for instance, buy this cloth at $1 a yard from the English manufacturer, and aim to sell it to retailers at a gross profit, let us say of 10 per cent, or at $1.10 a yard, competition among importers, we will assume, preventing a greater profit. If now an import tax of 50 per cent, or $.50 a yard, is imposed on such imports, the total cost to the importers, including the tax, is $1.50. If they are now to make a profit of 10 per cent on their sales they must charge for the cloth $1.65 a yard. If importers sell the cloth for less than this price they make less than 10 per cent profit. Retailers, we may assume, customarily sell to consumers at a gross profit of 20 per cent. If they could buy the cloth at $1.10, they would sell at $1.32. But being compelled to pay $1.65 on account of the tax, they charge their customers $1.98 a yard. Thus the ultimate consumers pay the tax increased by a percentage which represents the merchants' customary rate of gross profits. Our illustration has thus served a double purpose. It has not only illustrated the process of shifting but it has indicated one

of the great weaknesses of indirect taxes — the fact that they are not economical. They take out of the pockets of the people much more than they put into the treasury of the state. In this particular case the government obtains a revenue of $.50 a yard, and the ultimate consumer pays a tax of $.66, the difference between the price he would pay if the cloth were not taxed, and the price he actually does pay, assuming that the tax is shifted by its full amount, and that importers and retailers obtain their customary profit of 10 per cent and 20 per cent respectively.

Import duties as they are imposed in the United States are uneconomical for two other reasons. Being imposed for the purpose of protecting home industries rather than for revenue only they are necessarily placed on a great variety of articles, and this occasions a great deal of expense in collection. Secondly, being imposed on articles which are produced within the country as well as abroad, they tend to raise the price of that part of the supply of the commodity produced within the country as well as the price of that part of the supply that is imported. That is in fact the intent of the duty — to permit the home manufacturer to sell at a higher price. If, then, half of the supply of woolen cloth is produced within the country, because the domestic producer is protected, and half of it is imported, the ultimate consumer may be assumed, with certain qualifications to be noted in Section 7, to pay a tax per yard on the whole supply somewhat greater than the tax per yard which the government collects on half the supply.

In respect to certainty and convenience little adverse criticism can be made of import taxes. Usually, although not always, the amount of the tax to be paid is known at the time the obligation of payment is incurred. One exception is when the importer fails to interpret the law correctly on account of its complexity. The possibility of confusion is evident when it is noted that the Tariff Act of 1922 makes a volume of 198 pages, and the Customs Regulations a volume of 700 pages.[1] Payment of import duties is at least as convenient as most other taxes, since it is made at the time of the purchase of the goods, and therefore ordinarily in convenient installments throughout the year.

Import duties in the United States could be made more economi-

[1] Ely, *Outlines of Economics*, p. 679.

cal and more certain if they were levied for revenue only on a comparatively small number of articles not produced within the country, such as coffee, rubber, raw silk, and so on.

Avoidance of import taxes is of course easy. One need only avoid importing the taxed article to avoid the tax. When the government places the tax so high that it becomes prohibitory and imports cease, it is obviously the intent of the government that the tax shall be avoided. One may say that when a protective tariff policy is in operation the intent of the government is that to a considerable degree the tax shall be avoided by cessation of importation of the taxable commodities. In such cases the tax is avoided only in the sense that no importer pays the tax to the government. But if the duty that keeps out imports raises the price of the commodity to the ultimate consumer, and that is usually the object of the duty, the ultimate consumer in effect pays a tax equal to the increase in price, and this tax may be said to be collected from him by the producer of the protected commodity, instead of by the government.

Excise taxes like import taxes are uneconomical in that they are indirect taxes. The ultimate consumer pays a greater tax, if the total burden is shifted, than the government obtains in revenue, just as in the case of import taxes. But in other respects excise taxes, as they have been applied in the United States, are economical. Except in war time they have been imposed on only a few selected commodities, such as tobacco and tobacco products and liquors. The process of collection has been simple. Producers have been compelled to affix stamps on their product to the amount of the tax. Absence of the stamp on any taxable product has been clear evidence of tax evasion. There has been, therefore, little evasion, and the cost of collection has been very small, the tax being collected when the stamps are sold to the producer.

Excise taxes are convenient to pay, the tax becoming due only when the producer disposes of the commodity and thereby presumably gains the means of paying the tax. They are certain, since the producer may easily learn the amount of the tax and the time and manner of payment. The only element of uncertainty enters when the amount of the tax is changed by a revision of the law, and in that respect all taxes are uncertain.

5. Import and excise taxes and justice. If, as is commonly as-

sumed, import and excise taxes are in large part shifted to the ultimate consumer they grossly violate the principle of justice in taxation, particularly when they are made practically the only sources of revenue, as they were made by our Federal Government for a century and a quarter, and when they are imposed on articles commonly consumed by the poor. They violate the principle of justice because they take a larger percentage of the poor man's income than of the rich man's income, and they tax the man with a family to support more heavily than the one without a family. The poor man ordinarily spends for such things as tools, woolen and cotton cloth, or garments, sugar, coffee, beer, whiskey, and tobacco a far greater proportion of his income than the rich man spends for these things. And it is on just such articles as these that our government has laid heavy duties. One could, of course, try to excuse the injustice of some of these duties on the ground that the poor would be better off by not using coffee, beer, whiskey, and tobacco. But since the poor do use these articles, except where their use is prohibited, just as do the rich, it remains true that such taxes bear more heavily on the poor than on the rich. It is also true, as already indicated, that the larger a man's family is, the more taxes he is compelled to pay, since the more of the taxed commodities he must buy.

6. How an excise tax tends to be shifted. It should not be assumed that only so-called indirect taxes are shifted, or that these are always shifted to their full amount. A full discussion of the shifting and incidence of taxation is impossible within a single chapter, but it seems desirable to indicate briefly the conditions under which shifting is most likely to occur. Let us take a concrete case to illustrate the principles involved. Assume that plug tobacco is being produced under competitive conditions, and that under the stress of competition the price obtained by the producers is just high enough to yield a fair return to the producer of average efficiency — let us say, operating costs, plus interest on investment, plus a small per cent for risk to capital employed and fair wages of management. Altogether, let us say, a return great enough to induce the producer of average efficiency to remain in business. Others more efficient make a little more. But others less efficient make less, and are likely sooner or later to drop out. Assume that the price obtained under these conditions is $.40 a pound.

Now assume that the government imposes an excise tax of $.10 a pound on plug tobacco, to be paid by producers before or at the time they sell their product. This becomes an additional cost. Without taking into consideration the extra capital which producers must employ to carry temporarily the burden of paying this tax, they must now obtain a price of $.50 a pound to do as well as before, unless they can by some means reduce their costs of production.

But according to the law of diminishing vendibility, they cannot sell the same quantity as before at a price 25 per cent higher. Any attempt to pass the whole tax on at once to the consumers will bring a decrease in the quantity sold. In this particular case, however, the demand for plug tobacco being somewhat inelastic, or insistent, a rise in price to $.50 would not reduce the demand a great deal — or in other words, a slight reduction in the quantity put on the market would permit the available supply to be disposed of at $.50. It is not likely, however, that the competing producers would reduce output, but on the contrary they would probably continue producing as much as before, with the result that temporarily they would have to bear part or all of the tax of $.10 a pound. This result would, however, soon ruin the less competent producers, and output would decline and price would rise until the producer of average efficiency was once more obtaining a fair return. Except for the possibility that the crowding out of the least effective producers had raised the average efficiency of the producers, and thereby somewhat reduced the price at which these producers could produce and still secure a fair return, the market price would eventually tend to rise by the amount of the duty. At any rate, any gain in the way of lower costs of production that resulted from the crowding out of the least effective producers would represent only a fraction of the amount of the tax. Thus the consumer would in the end bear most or all of the burden of the tax.

There is one possibility that must not be overlooked. If the output of plug tobacco declined, the demand for the raw material from the tobacco planters would also decline. The price of this raw material — leaf tobacco — we may assume to cover at any given time at least the cost of cultivation and marketing of that part of the supply grown under the least advantageous conditions. A fall in the price of tobacco might lead to the production of these

most expensive units being discontinued, so that the marginal-cost tobacco might be somewhat lower-cost tobacco than before. The reasoning here is abbreviated, but if it is not clear the reader may turn back to our Chapter IX, on cost and price in agriculture. In short, the price of leaf tobacco might in the end be somewhat lower, and the costs of production of the plug tobacco producers might therefore be lower, and the price of their product might then not be raised to the full extent assumed above.

The burden of the tax might, then, be shifted forward by the producers to the ultimate consumer, or backward to the other business men from whom they purchased raw materials, or for that matter, various other kinds of producers' goods. It might even be shifted back to the laborers employed in production of the taxed commodities, if a rise in price of the commodities caused a considerable decline in demand, and therefore in production, and therefore in the employment of labor. But it could be shifted to the laborers only on condition that the industry being taxed employed a large part of all the laborers of the class concerned.

7. How import taxes are shifted. In the case of import taxes the possibility of shifting may be deduced by similar reasoning. If the importer tries to add the tax to his former price, it is likely to reduce demand. Either less must be imported, or the commodity must be sold at the same price as before, the importer or the foreign producer bearing the burden of the tax. The importer is unlikely to bear a considerable part of the burden, since, as a middleman, he is presumably making only a fair profit before the tax is imposed. The question then remains: will the foreign producer sell more cheaply than before by the amount of the tax? Possibly, if our market is necessary to him to dispose of a large part of his supply, or if he has a monopoly in his home market, and desires to dump his surplus on our market at any price in order to maintain higher prices at home. If, however, there are a number of competing foreign producers selling the commodity in other markets as well as in our market, import duties are likely to be added to the producer's selling price, just as are excise taxes, for similar reasons.

8. Conditions under which shifting in general takes place. The whole problem of shifting and the conditions favorable or unfavorable to shifting may be summarized as follows:

If the tax is levied in such a way that it tends to increase the cost of production alike for all producers, then it is likely to bring the cost of the marginal producers above the market price of their product, and thus involve them in loss, and to increase the losses of producers already producing at a loss. This will force more than the normal number of producers to quit, which will reduce the quantity thrown on the market and permit a rise in price. The rise in price must be great enough to permit most of the remaining producers once more to gain at least a fair return on their investment, for until that condition exists, production will continue to decline, or at least will not grow as rapidly as demand for the product.

If the demand for the product is inelastic, or insistent, a small decline in output will cause a rise in price that offsets a moderate tax, but if the demand is elastic, a considerable decline in output will be necessary to permit the tax to be shifted. If producers can escape from the industry without great loss, once a tax is imposed, the tax will be shifted promptly to the consumers. But if producers have heavy indirect costs and highly specialized plant and equipment, and particularly if they are few in number, all may continue in business for some time, and continue producing the usual supply, even at a loss, for reasons sufficiently explained in other chapters of this book. In this case the burden may be borne in large part for months and years by the producers. Eventually it would tend to be shifted to the consumers, as the capital employed in the industry became depleted and output declined.

If the tax is levied in such a way that it does not strike the least efficient producers, as, for example, a tax on excess profits, or even a tax on ordinary profits, as the economist defines the term profits, the effect on quantity produced will be much less marked than when the tax strikes all producers alike. Output being less affected, price also will be less affected. In other words, the tax will tend to be borne by the profit-making producers, and will not tend to be shifted to the consumer.

If the tax is imposed on something the supply of which is absolutely fixed, and which has no cost of production, because it is not produced by man, as on land, or natural resources, the tax must be borne by the owners of such property. Here shifting is ordinarily impossible, because shifting is as a rule made possible only through an increase in cost of production and a decline in output.

The import and excise taxes imposed by our federal government have for the most part been levied in such a way and on such commodities that conditions have been favorable for shifting to the ultimate consumer, and so we may conclude that the charge of maintaining an unjust system of taxation for a century and a quarter must stand against our government. During that time it undoubtedly taxed the poor more heavily than the rich, in proportion to their incomes, and taxed men with dependents more heavily than men without dependents.

9. Can the consumer shift the tax? Some economists have indeed held that the poor manage to shift this burden of taxes on commodities back to the rich, because the higher cost of living resulting from the taxes makes higher wages necessary. The validity of this reasoning rests primarily upon the assumption that the high cost of living reduces the supply of labor by bringing about a decrease in the birth rate or, what is more likely, an increase in the death rate, or in a country like the United States, a decrease in the number of immigrants. Doubtless a rise in the cost of living, or in this case, we should say more accurately, a fall in real wages, would tend to restrict immigration and to raise the death rate among the poor. It is not so certain, however, that a fall in real wages will reduce the birth rate among workers already so poor that this fall in wages will increase their death rate. There is statistical evidence indicating that there is a limit of poverty and misery below which multiplication of numbers takes place regardless of economic consequences. Even if the poor can thus shift the burden back to the rich, we have not here a good argument for taxes on commodities. If it is our intention that the poor shall not bear this burden, then why not save them the trouble of shifting it — by starving to death perhaps? Why not place it where it belongs in the first place, on the shoulders of those most able to bear it?

10. The general property tax — a notoriously bad tax. While our Federal Government has for the greater part of its existence depended mainly on import and excise taxes for its revenue, our state and local governments have raised most of their revenue from the general property tax. The general property tax, as the name implies, is a tax levied on practically all kinds of property. As it has been applied by our state and local government it has been one

of the worst possible kinds of taxes, so numerous and glaring have been its defects.

In recent years in some States, this tax has been reformed, or supplemented, or replaced by other taxes collected to support the state governments. The adverse criticism of the general property tax that follows does not therefore fully apply to the tax as it is administered at present in those States which have reformed their systems of taxation. Unfortunately, however, the criticism is still applicable in whole or in part in many of our States.

As it has ordinarily been applied, the general property tax grossly violates the principle of justice in taxation. In so far as it makes any pretense of working justice, it assumes justice to be attained when people pay in proportion to the value of the property they own. If the general property tax did result in this sort of equality of payment it might still be held, for several reasons, to violate the principle of justice — if we hold justice to be attained in taxation when people pay in proportion to their ability. It would go too far in differentiating in favor of earned incomes, since it would tax earned incomes not at all, but would draw all its revenue from incomes from property, if we assume, as is normally the case, that taxes on property are paid out of income. It would tax the man with a family to support just as heavily as one without a family. And it would take no larger part of the rich man's income from property than of the poor man's income from property. To give one concrete, and by no means fanciful, illustration of the justice of this tax, it would tax a widow with a half dozen small children perhaps $200 a year on a net income of $600 a year in rent from a house purchased with her dead husband's insurance money. Even if she lived in this house with her family and therefore received no cash income from it, she would still pay the tax of $200. On the other hand, a doctor in the same city, owning no taxable property, but earning an income of $10,000 a year, would be taxed not at all. This sort of thing would be bad enough, but the general property tax is to be charged with much grosser violations of the principle of justice than arise from a rather heartless proportional rate on all property owners regardless of their circumstances. Let us note some of its most notorious defects.

11. **The evil of taxing stocks, bonds and mortgages.** First let

us note that it often taxes both the property itself and the evidence of ownership of that property. For example, a corporation may own property in one State, and as a corporation pay taxes on this property to the State in which it is located. But some of the stockholders may live in another State, and be compelled to pay taxes on the value of their stock. Obviously these stockholders suffer from double taxation — being taxed by one State on their property, and by the other State on their stock certificates, or evidence of ownership of that property.

A somewhat similar, and in some respects a worse, evil than that just illustrated is represented by the taxation of bonds and mortgages. Let us assume, to illustrate this point, that Smith and Jones each own a $10,000 house in a city in which the tax rate is 2 per cent on the full value of the property. If each has his house fully paid for, and has no other taxable property, each will be compelled to pay $200 in taxes. But suppose that Smith had only $5000 when he built his house and Jones had $15,000, and that Smith borrowed $5000 from Jones, giving the latter a $5000 mortgage on his house. As the general property tax is applied in many States, Smith would be allowed no abatement in taxes for his $5000 debt, or mortgage. He would pay his tax of $200 just the same, which would amount to 4 per cent of his actual equity in the house. But this is not the worst. Jones, as owner of the mortgage, would be compelled to pay a 2 per cent tax on that, or $100, and this tax he might be able to shift to Smith. He might have the opportunity of investing his $5000 at a reasonable rate of interest in some tax-free investment, this usually being possible under our present systems of taxation. The rate he might obtain on his tax-free investment, would be, let us say, 6 per cent. If, now, Smith wants Jones' $5000 as a loan he must pay the 6 per cent that Jones would get by investing his money elsewhere, and in addition the 2 per cent required to pay the tax. Therefore Smith would pay in taxes altogether $300, although he owned only $5000 worth of property, while Jones would pay only $200 net, although he owned $15,000 worth of property, including the $5000 which he lent Smith on the mortgage. Smith would actually pay taxes at the rate of 6 per cent on the value of his equity in his house, while Jones would pay at the rate of $1\frac{1}{3}$ per cent on his property. Real examples like this are easy to find and represent

that gross form of injustice which compels the poor man to pay taxes at a higher rate than the rich man.

Some States, as West Virginia, tax bonds and mortgages, but not stocks of corporations. This has the unfortunate effect of inducing investors to buy more or less speculative stocks instead of sound bonds and mortgages, in an attempt to avoid the tax.

12. Tax exemption for liars. The evils already discussed arise from the fact that the general property tax is unjust and illogical in principle. But other evils, even more glaring, arise from faulty administration of the tax, particularly in connection with methods of assessment. The ordinary method of assessment is that of having local assessors place a value on every person's property of all kinds. In practice the valuation is based on the taxpayer's own statement of his possessions, or on the assessor's estimate of their value, or on both.

Now to state the matter quite plainly, we have here a direct incentive for lying, particularly in relation to that part of the taxpayer's possessions which may easily be hidden from the eye of the assessor, such as stocks, bonds, and money in the bank, and in relation to that kind of property which, although not hidden, is difficult for an assessor to evaluate at anywhere near its actual value, such as stocks of goods in stores, or inventory items and equipment in factories. The most unscrupulous and capable liar pays the lowest taxes. Those who are too honest to lie, or who cannot lie effectively, pay the highest taxes. Naturally those whose property consists of such things as agricultural land, houses, and live stock, the value of which can readily be determined by a wide-awake assessor, have less ample opportunity than others to lie to the assessor, so that the general property tax not only discriminates in favor of the liar as against the truthful man, but it even discriminates among liars according to the kind of property they own.

Other causes tend to contribute to discrimination in valuation. The local rich men, who are among the most influential men of most communities, may bring pressure to bear upon the assessor in order to obtain a relatively low valuation on their holdings of real estate. Entirely aside from this is the probability that the assessor will be less able to arrive at a true valuation of highly valuable parcels of real estate than of smaller parcels, which change hands more

often and whose value is a matter of more or less common knowledge.

13. **Community lying.** In addition to the local discrimination and injustice that arise from undervaluation, and from evasion that grows out of dishonesty, incompetence, and corruption, there is the discrimination among the various counties of the State. This latter evil arises from the fact that the general property tax is levied for state purposes as well as for local purposes, and the rate of taxation for state purposes is the same over the whole State. The rate is determined by dividing the amount of state tax to be raised by means of the general property tax by the total valuation of all the property in the State. The amount to be collected from each local tax district is then calculated by multiplying the value of the property there located by the state tax rate. Obviously it is to the advantage of the people of any particular county to keep the valuation of their property down. For example, if the total valuation of all taxable property in the State is $5,000,000,000, and the amount to be raised by the state tax is $20,000,000, the tax rate will be $.40 per $100. If, now, the true value of a certain county's taxable property were $200,000,000, but the local assessor, by a sort of gentlemen's agreement with property owners, scaled every one's valuation down to 50 per cent of actual value, the people of that county would pay in the aggregate for state purposes only $.40 per $100, on $100,000,000, instead of on $200,000,000, and would thus save themselves in state taxes $400,000. We may say, then, that the general property tax puts a premium on community lying. Quite naturally, the various counties of any State in which such opportunities are offered vie with one another in reducing the assessed valuation of their property below the actual value. This competitive undervaluation tends to raise the tax rate all around, so that if at full value it were $.40 per $100, at half value it must be $.80. Only those counties gain which manage to outdo the average county in undervaluation.

This evil grew so pronounced that state boards of equalization were established to deal with it. These boards attempt to obtain assessments at full value, or, when this is impossible, strive for equal undervaluation throughout the State.

A peculiarly irksome result flows from such more or less general

undervaluation. Bonds, mortgages, and money in bank are not easily undervalued. Unless the owner deliberately lies to the assessor and succeeds in keeping his ownership of such assets concealed, they are likely to be assessed at their full value. It is too absurd to assume that a sound $1000 bond is worth only, let us say, $100, although the assessor may readily agree that a $1000 piano is worth only $100 if the law says it shall be valued at what it will bring at public auction. It follows that bonds, mortgages, and money in the bank may actually be taxed at a rate several times as high as land and buildings, which may be grossly undervalued, although the former in justice ought not to be taxed at all, or at least taxed at a lower rate than real property.

14. Possibility of reforming the general property tax; classified property tax. A more detailed discussion of the general property tax would bring out additional evils, so that it is even worse than described above. It does not follow, however, that it ought to be abolished. It may be reformed, and in some States it has been greatly improved.

The work of assessment may be put into the hands of trained assessors appointed by the State under civil service rules. Such assessors would be better qualified to begin with than the average local assessor under the present system, and they would retain their positions as long as they desired, provided they performed their work well. They would in fact be professional assessors, and a great improvement over amateur assessors. Working under direct state supervision, they would be less inclined to display local favoritism. Under this system not only would there be less unjust discrimination between persons living in the same city or county, but there would be greater equality of valuation among the various counties of the State. Local and state boards of equalization might supplement the work of the assessors by making changes in valuations which were obviously too high or too low.

In some States the general property tax has been modified by classifying property and taxing the various classes of property at various rates, instead of taxing all property at the same rate; and other States are contemplating this reform. Of most interest in this connection is the tendency to tax so-called intangibles, such as stocks, bonds, mortgages, money, and credits, at a much lower rate

than tangible property such as land, houses, store buildings, and other real estate. Two good reasons for fixing a low rate on intangibles may be given, one based on justice and the other on expediency. When all real property is taxed without any abatement for debts of the owners, such as represented by bonds and mortgages, to tax stocks, bonds, and mortgages, is to resort to double taxation. One might hold that bonds and mortgages as well as stocks of corporations should be free from taxation, since the property they represent has already been taxed. This would represent justice. There is a strong feeling, however, among the people that bondholders and mortgage holders, as well as owners of other intangible property, should be taxed, and justly or unjustly this is what the general property tax has generally attempted to do. But experience has shown that this property is easily hidden from the eyes of the assessors, and that taxpayers do not hesitate to lie to the assessor concerning their ownership of such assets, some no doubt assuming that a lie is always justified provided it saves one money, and others assuming that although lying on general principles is abominable, it is virtuous to lie in the interest of justice. It is not difficult for many taxpayers to convince themselves that they must lie in the interest of justice when, if they tell the truth, they must bear much more than their fair shares of taxes, and by departing from the truth they manage to hold the scales of justice even. It is expedient, then, so to reduce the rate of taxation of intangibles that most taxpayers are willing to declare their property and to pay the tax. In States where the low rate has been put into effect on intangibles, assessments on such property have enormously increased, and the total tax collected has been greater under the low rate than under the former high rate. This has been the result partly of more effective administration of the modified law, but partly, too, of the fact that most people will tell the approximate truth to assessors if they can do so without being unjustly taxed.

In recent years state governments have been drawing a large part of their revenue from other forms of taxation, such as inheritance taxes, income taxes, special taxes of various kinds on corporations, and more recently from sales taxes, particularly the tax on gasoline. To the extent that States can rely on such taxes they cease levying a general property tax for state purposes, and this minimizes or re-

moves the abuse of unequal assessment of property in the various counties of the State.

As thus modified the general property tax becomes a much better tax, although not an ideal one. But no tax is perfect, and other taxes which might be substituted for taxes on property, such as income taxes, business taxes, and sales taxes, have their own peculiar defects, some of which will be noted in the following sections of this chapter. Before saying our concluding word on this subject let us turn to consider income taxes and inheritance taxes, which in recent years have greatly modified our systems of taxation.

15. Income taxes; a logical development. Since practically all taxes must be paid out of income no matter on what bases assessed, taxes based directly on income, or income taxes, are a logical development. In one form or another they have long been levied. But in recent times they have become relatively of much greater importance in the tax systems of leading industrial countries. This has been the result mainly of two causes. First, the increasing complexity of industry and the consequent increase in the activities and expenditures of the government have brought the necessity of greater revenues. Second, the movement toward democracy and humanitarianism has brought a demand for progressive taxation — taxation which will throw a relatively greater burden on the well-to-do and rich, who can best afford to pay taxes. Income taxes have proved to be convenient instruments both for raising additional revenue and for throwing the burden mainly on those most able to bear it.

Income taxes may take various forms. They may be taxes on each taxable person's total income from all sources, with certain exceptions, or general income taxes. Or they may be taxes on incomes from selected sources, as taxes on interest or rent, taxes on business income, taxes on incomes of selected business organizations as corporation income taxes, or even taxes based on certain external indications of income, as the size of one's house, or the number of windows in one's house, and the like. We must confine our discussion mainly to general income taxes.

16. Our federal income tax laws. In the United States the Federal Government applied an income tax during the Civil War, and this tax remained in force until 1872. It would probably have been

valid by the Supreme Court and remained in force until 1872 when it was abandoned because of faulty administration. Another federal income tax law was passed by Congress in 1894, but this law was declared unconstitutional on the ground that all direct federal taxes must be apportioned among the several States according to population. So great had become the popular demand for an income tax, however, that an amendment to the Constitution was made, giving Congress the power to levy income taxes, and immediately after this amendment was ratified in 1913, Congress passed our third federal income tax law.

Briefly stated, the law of 1913 exempted incomes of unmarried persons up to $3000, and of heads of families up to $4000. Incomes above $4000 paid a normal tax of 1 per cent, and in addition large incomes paid an extra tax, or as it is technically called, a surtax, the maximum rate being 7 per cent. During the World War these rates were sharply increased, until the normal rate was 12 per cent and the surtax as high as 65 per cent on that part of any person's income in excess of $500,000. The amount exempt was reduced to $1000 for unmarried persons, and $2000 for heads of families, respectively. As a special war measure an excess profits tax was also imposed, the rate rising as high as 80 per cent in 1918. After the war the excess profits tax was allowed to lapse, and the rates of the income tax were reduced in 1921, again in 1924, and again in 1926.

As revised in 1926 the law provides for a personal exemption of $1500 for a single man and $3500 for the head of a family and an additional exemption of $400 for each person, except husband or wife, dependent for support upon the taxpayer. The normal tax rate is fixed at 1.5 per cent on the first $4000 of taxable income, 3 per cent on the next $4000, and 5 per cent on all over $8000. In addition a surtax is levied on that part of all incomes in excess of $10,000, beginning with a rate of 1 per cent on the lower incomes and increasing to 20 per cent on incomes above $100,000.

Since there is frequently a misunderstanding in respect to the actual amount paid under the graduated surtax, the reader should note that a man with an income of $200,000, under the present law would not pay a surtax of 20 per cent on the whole amount, but only on that part of it in excess of $100,000. On the first $100,000 he would pay all the way from 1 per cent on that part of his income

between $10,000 and $14,000, up to 19 per cent on that part between $80,000 and $100,000, the total surtax on his first $100,000 being $11,660 — not, as seems to be widely understood, $20,000. This point is here noted in detail because much of the criticism of a high surtax is apparently based on the idea that the maximum rate applies to the whole income.

In addition to the tax on individual incomes the law of 1926 levies a tax of $13\frac{1}{2}$ per cent upon the net incomes of corporations. In order to avoid double taxation in respect to that part of any individual's income received in the form of dividends from corporations, individuals are permitted to deduct the amount of such dividends from their net income when computing their normal income tax.

The present law contains a section providing for differentiation between earned income and other income. In brief, the first $5000 of income shall be automatically considered earned, and $15,000 additional may be proved to be earned, and such earned income is taxable at three fourths of the regular rate.

In addition to our federal income tax, we have in recent years had income taxes applied by many of our States, including notably New York, Massachusetts, and Wisconsin. The rates of the state income taxes have generally been low and progressive.

17. Advantages of an income tax. Consider now some of the advantages as well as some of the defects of an income tax, and some of the problems of administration. One great advantage of an income tax over other taxes is that it can be readily adapted to taxing those more able to pay at a higher rate than others by exempting small incomes, by granting some special exemption to persons with dependents, by differentiating between earned incomes and other incomes, and by making the rate progressively higher in the higher ranges of incomes. Conceivably such exemption and progression could be practiced with the general property tax, but in practice that tax has granted no exemptions to persons of small incomes or persons with dependents that have not also been granted to other persons. Exemptions are ordinarily limited to personal belongings like clothing and small items of jewelry, and, in some cases, household furniture. Not only has the principle of taxing the rich at a higher rate on their property than the poor, not been applied, but,

as we have seen, the poor have frequently been taxed at a higher rate than the rich through unequal assessment. On the other hand the principle of differentiation under the general property tax runs to the extreme of totally exempting earned income.

Customs and excise taxes, as already indicated, tax the poor more heavily than the rich, and persons with dependents more heavily than those without dependents. These taxes do not and cannot apply the ability theory of taxation. Instead of being progressive, they are just the opposite, regressive, taxing those of the least ability, instead of those of the greatest ability, at the highest rate.

As compared, then, with these older taxes, by means of which our governments — federal, state, and local — obtained most of their revenue for more than a century, the income tax is more just in principle. Even if one were not convinced of the desirability of taking a larger share of the income of the rich than of the poor in taxes, one might still advocate a progressive income tax, merely to offset the excessive taxation of the poor by other taxes.

Another advantage of the income tax is that it is one of the most difficult taxes to shift. The man who pays the tax to the government is ordinarily required to bear most of the burden. Shifting of taxes, as already indicated, ordinarily occurs only when the tax increases the costs of production of the least efficient producers, forces them out of business and thus reduces the available supply of their product. The diminished supply may then be sold by the remaining producers at a higher price. An income tax, since it falls lightly or not at all on the least efficient producers in any industry, is less likely to drive them out than an excise tax, or a general property tax, which falls with equal weight on the successful and the unsuccessful. Furthermore, if it is levied on the incomes of all persons in all industries and professions, it cannot be avoided by the expedient of changing industries or professions. A general income tax tending, therefore, to have little effect on the total supply of goods and services offered in the market, cannot readily be shifted by the expedient of raising the prices to the buyers, since these are presumably already paying as much as they can be persuaded to pay for the quantity supplied.

18. Some criticisms of income taxes considered. If the rate of the income tax is made unduly high on big incomes from which investment

funds are largely drawn, and if the proceeds of the tax are spent in wasteful fashion, so that the country gains no permanent benefit from them, the income tax may slow down industrial progress by limiting the supply of new capital for industry. There is some danger that this may be the result of an income tax exempting the incomes of a large majority of the voters, and thus encouraging them to support a policy of government extravagance under the assumption that the rich alone must pay the bills. In the long run this would mean lower real wages to the workers, because it would mean a smaller total product of industry from which real wages must be drawn. Thus conceivably the income tax on the rich would eventually be shifted to the poor.

The argument of repression of industry by limiting the supply of new capital may be overworked, for various reasons. First of all, it may be assumed that the rich pay the maximum rate of the income tax on their whole income, when as a matter of fact the rich man pays a graduated tax on his income ranging from a low rate on his first $10,000, to a much higher rate on his income over and above a certain amount, as $100,000, or $1,000,000. Thus his average tax is lower than the maximum rate specified in the law.

Secondly, the poor do save part of their incomes, and the less they are taxed the more they can save, and these savings as well as the savings of the rich become capital. The extra taxes paid by the rich do not, therefore, necessarily represent a net loss of capital.

Thirdly, the money collected by the government is not necessarily wasted if taken from the rich any more than it would be if collected from the poor. It may be used in productive public improvements such as roads, bridges, and harbors, which represent capital equipment as truly as do privately owned stores and factories. Or it may be used for the construction of sewers and drainage canals, and for other works that are absolutely necessary for public health and are of greater importance than, let us say, the construction of additional chewing gum and radio factories.

Fourthly, the tax money may be collected to pay interest and principal of the public debt, which must be paid by some kind of taxation, and may thus find its way back immediately to the owners of government bonds to be invested as they see fit.

We may grant that these arguments are not conclusive. Doubt-

less excessively high income taxes on the rich do repress industry, but this is not an argument against progressive income taxes, but merely an argument against excessive taxation, and it would apply to excessive taxation of any kind.

How high the rates on large incomes may be without unduly repressing industry is a debatable subject. Possibly the maximum surtax of 40 per cent on incomes above $500,000, as under the federal law of 1924, is excessive. Possibly the maximum of 20 per cent as under the Revenue Act of 1926 is excessive, but the case of those who contend that this is so is weakened by several considerations. First of all, this tax is being collected largely to pay for the war, and to maintain a naval and military establishment that most of the rich contend is necessary. It is therefore an unavoidable tax, which someone must pay — either the rich or the poor. Secondly, the high rates that have been in operation since the war have apparently not checked the accumulation of capital, which is pouring into industry in unprecedented amounts. Thirdly, many of the greatest advocates of reduction in rates on the grounds that it is checking the accumulation of capital insist, at the same time, that our industrial capacity is already too large — that our manufacturing plants must be run at less than capacity if the product is to be marketed at a price equal to or above the cost of production, as, for example, our locomotive factories, iron and steel plants, copper mining plants, and so on through a long list. With this last contention the writer is not in full accord, but notes it merely to show the contradictions involved in arguing that the country is starved for capital in general, but oversupplied in most of its major industries, in particular. One of these two conditions may obtain, but not both.

19. Difficulties of assessing incomes. A progressive income tax, although theoretically a just tax because it taxes people roughly in proportion to their ability, may be so badly administered that it becomes an unjust form of taxation. It is often difficult to determine what the taxpayer's income is, particularly when he is shrewd and employs every conceivable device to befuddle the income tax assessors. Even when no attempt at evasion or avoidance of the tax is made, the very complexity of the law makes it difficult in many cases to determine the taxable income. Complications arise from

the various rates imposed on the various income groups; from the methods of calculating the incomes or profits of corporations, partnerships, and individual proprietorship; from the special tax on corporations, and so on. The federal income tax law of 1926, if printed in book form, would make a book of more than 100 pages, of 300 words to the page. A business man with somewhat complicated business interests, being called upon to pay taxes under such a complicated law, and being required to fill out his income tax returns on a complicated blank prepared for taxpayers, requires the service of a tax expert, regardless of whether he is trying to pay his fair share of the tax, or is trying to evade payment. And even then he may pay too much or too little.

20. **The income tax and the farmer.** It is held that farmers as a class escape the income tax because their income is only in part a money income. A farmer may have a money income so small that he is exempt from the tax — in fact most farmers do have — and yet may enjoy a larger real income than others who are subject to the income tax. A farmer's family, for instance, may live in a house that would rent for $1000 a year if located in a city, and use food products grown on their own farm which would cost another $1000 at a city market, and have in addition a net money income of $3000, or a total income equivalent to the $5000 salary of a city man. But the farmer would be exempt under the present law, while the city man, if married, might pay $16.87. So far as the income tax alone is concerned this is unfair, but it is well to bear in mind that farmers as a class have in the past borne more than their fair share of state and county taxes, and probably, also, through the operation of the protective tariff, more than their fair share of federal taxes, and for the most part still bear more than their fair share of these taxes. Until we reform other features of our tax systems we cannot consider it a serious defect in the income tax that it lets the farmer off lightly.

21. **Conclusions.** Similarly it is held that the income tax, by exempting small incomes, lets the great majority of the people escape the tax altogether. But so long as we tax the poor unduly heavily by means of indirect taxes and unjust assessments of their property under the general property tax, this cannot be held to be a serious defect. It represents merely an adjustment in the interest of justice.

On the whole the federal income tax is a desirable feature of our tax system, and should be retained. It is more nearly in accord with the canon of justice than our other taxes, and tends to offset some of the inequalities inherent in our import and excise duties. It is convenient, since it may be paid in installments out of income. It is economical, because the costs of collection are comparatively small, since the exemptions reduce greatly the number of incomes that must be assessed, and because as much as any tax, it is direct, so that the taxpayers pay out very little more than the government receives. It has some faults in the matter of certainty, but this is in large measure because the tax is yet new. Greater experience with the income tax on the part of both the officials and the taxpayers will make for greater certainty in respect to the amount of the tax due.

22. State income taxes. State income taxes cannot and need not be discussed at length in this chapter. The general principles and conclusions that apply to the federal income tax apply also to our state income taxes. One serious defect of the latter is the lack of a uniform policy among the various States of determining what incomes ought to be taxed in the respective States. One logical plan would be for each State to tax the incomes of all citizens of that State regardless of the sources of their incomes. Another logical plan would be for each State to tax all sources of income in that State regardless of the domicile of the taxpayer. Neither of these plans, if followed by all States, would lead to double taxation.

Unfortunately neither of these plans is followed by all States having income taxes. New York, for example, taxes its own residents on their total income, whether the source of the income be in New York or in other States. But it also taxes residents of other States on income received from New York sources. Now it is obvious that if all States did this, all persons living in one State, but receiving income from a source in another State, would be taxed twice on the same income.

If our local governments should resort to income taxes, this sort of double taxation would be enormously increased. Fortunately no such development is likely. Some States use the state income tax as a source of local revenue, by distributing part of the tax collected by the State among the local governments. This avoids the problem

of double taxation, but brings other problems in respect to the basis on which the state tax ought to be distributed — problems which cannot be discussed here for lack of space.

Another problem growing out of the use of state income taxes arises in connection with the taxation of incomes of corporations that own and operate property in more than one State, such as railroads. How decide what part of the income of a railroad running through a half-dozen States is properly taxable in each State? This problem and others can be solved only by coöperation among the States to bring about some sort of uniformity in their tax laws.

23. Federal and state inheritance taxes. To inheritance taxes we can give but brief attention. Inheritance taxes are now levied by the Federal Government and forty-five of our state governments.[1] The Federal Government taxed inheritances after the Revolutionary War, and again during the Civil War, and a third time during the Spanish-American War, but in each case soon abandoned this tax. In 1916, however, it once more imposed an inheritance tax and this tax, in a modified form, is still in force. At first the rates were moderate, but under the exigencies of war and after-war finance the rate on large estates was raised, until in 1924 the maximum rate was 40 per cent of the amount by which the net estate exceeded $10,000,000. But the average rate was much lower; the average rate paid in 1923, under the Law of 1921, was only 5.05 per cent. The Revenue Act of 1926, which reduced income tax rates, reduced also the rates of the federal inheritance tax. The Law of 1926 exempts estates up to $100,000, and levies a progressive tax on the "net" estate above exemptions ranging from 1 per cent on the first $50,000 to 20 per cent on the amount by which the estate exceeds $10,000,000. A deduction is permitted up to 80 per cent of the amount paid in inheritance taxes to any State or Territory. The federal estate, or inheritance, tax with its moderately high rates yielded in the aggregate during the five years 1920–24 more than $600,000,000. This is a large sum; nevertheless it represents only a small fraction of the total amount of taxes collected by the Federal Government during those years. State inheritance taxes with their lower rates have yielded much smaller sums in the aggregate. During the same five years, 1920–24, the Federal income and excess

[1] Alabama, Florida, and Nevada levy no inheritance taxes.

profits taxes yielded more than $12,800,000,000, or more than twenty-one times as much as the federal estate tax.

24. Justification of progressive inheritance tax. Inheritance taxes with highly progressive rates and high maximum rates on large estates may readily be justified under the ability theory of taxation. A highly progressive rate is justified because the ability to pay increases rapidly with the size of the inheritance. Inheritance taxes can be justified on other grounds also. An inheritance represents an unearned income which the heirs receive in addition to their other income, except in some cases, as when a wife has cooperated with her husband in accumulating the fortune which he carries in his own name, and which she "inherits" when he dies, or when children similarly have coöperated with their parents in building up the fortune. No one has a natural right to receive something for nothing, and the State is not compelled to help a young man retain his father's fortune, in the accumulation of which he may have had no part. But the government may be held to have a right to part of the estate built up under its protection. Or again, no great fortune is built up by one man alone. He has necessarily had the coöperation of society, and society may claim a share of the fortune. But to justify the inheritance tax one need not go further than to base taxation roughly on the ability theory, with the ultimate aim of the best interests of the people as a whole.

How high the rates may be is a debatable question. Small inheritances received by widows from their husbands, or children from their parents, should probably be untaxed, both because they represent small ability to pay, and because it is socially inexpedient to tax them. The taxation of small inheritances tends to discourage the poor man in his laborious and laudable task of accumulating a competence for his family. Furthermore, even a small tax may represent a great sacrifice just at the time when the wage earner has been taken from the family. For similar reasons estates of moderate size should be taxed at moderate rates. But once the estate is so large that a considerable part of it may be taken and still leave the heirs with plenty to live on in comfort, the rate may rise rapidly. On the larger fortunes the limit of ability to pay is probably higher than the limit suggested by social expediency.

25. Do inheritance taxes dissipate capital? It is often said that

an inheritance tax tends to dissipate the capital accumulations of the country, since it takes from the heirs not merely their income but part of their capital. Undoubtedly there is some truth in this contention, but the argument must be examined with care. As inheritance tax laws have been applied in the United States, the rates have been moderate, and in most cases the tax represents but little, if any, more than one year's income from the inheritance. But even when higher rates are applied, so that the heirs actually lose part of their capital, say 20 or 30 per cent, the tax may still not tend more than other taxes to dissipate the wealth of the country. To assume that this tax more than other taxes does dissipate accumulated capital is either to assume that the inheritance tax represents an added burden of taxation, not merely a substitute for some other tax that would otherwise have to be paid, and that the money collected is wasted, or at least spent in unproductive ways by the government; or to assume that heirs are more likely to save their inheritances than other people are to save part of their incomes. Neither of these assumptions may be sound. The inheritance tax may be used as a means of reducing other taxes rather than as a means of increasing revenue. If it reduces other taxes it is possible, and even probable, that the persons relieved of part of their other tax burdens will save more than they otherwise would save. If the government uses the money collected from inheritances to defray the costs of public improvements of a productive character, it is adding to the capital accumulations of the country. If the government is inefficient it may be that the improvements made with the tax money will be worth less than they cost. But they will at least represent a partial offset. If the inheritance tax receipts are used to pay interest and principal of the public debt, these funds may be reinvested by the persons receiving payment. If it is argued that the bondholders would have received these payments even if no inheritance tax had been collected, then it may be answered that, if so, an equivalent amount of taxes would have been collected from some other source.

We must conclude, then, that except to the extent that inheritance taxes represent, not substitute taxes, but additional taxes, which are spent by the government in unproductive ways, or to the extent that shifting the burden from other taxpayers to inheritance

taxpayers reduces savings in the country, this form of taxation does not tend more than other forms to dissipate capital. This is not to say that no dissipation of capital can be charged against inheritance taxes, but merely to note that the dissipation is likely to be much less than may be supposed.

26. Inheritance taxes should be retained. The inheritance tax as we have it in the United States is more open to criticism in matters of detail relating to administration than in respect to the general theories of taxation involved. Like the general property tax and the income tax, it may lead to double taxation for lack of uniform policy of the various States that apply it. Heirs may be taxed by the State in which they live. The estate of the decedent may be taxed by the State in which it is located, or by the State in which he lived. Thus it is possible that three States may tax the same inheritance. The same estate may be taxed in addition by the Federal Government. It is conceivable that the total tax on a large estate might be more than 100 per cent, which is absurd. It is of course desirable that the States mutually agree on some logical basis of taxation of estates or inheritances, but it must be noted that such agreements may be hard to reach. If each of the forty-five States that have the inheritance tax is to reach an agreement with each of the others, 990 agreements must be reached. There is no likelihood that so many separate agreements among the States would lead to any logical and consistent policy of taxing inheritances. To achieve that end, either the States must thrash the matter out in a general convention of their tax authorities, or the Federal Government must supervise and control the general policy to be pursued.

Some urge that the Federal Government should give up its inheritance tax and leave that form of taxation available for the exclusive use of the States. It seems preferable, however, for the Federal Government to retain the inheritance tax, as it has done under the Revenue Act of 1926, with a moderately progressive rate and exemptions for small estates or legacies, with the provision that the amount of the tax payable to the Federal Government may be credited with any tax payable under state inheritance tax laws.

This has two possible advantages. First, it tends to encourage uniformity in state laws. Second, it tends to nullify the effect of

such tactics as those of Florida, which by constitutional amendment has prohibited the enactment of income and inheritance tax laws by its legislature, apparently to attract to its territory the rich men of other States by offering them the opportunity of escaping payment of state income and inheritance taxes. Obviously if one or more States thus set up tax-free reservations for the rich men of other States, the other States are hampered in their efforts to tax inheritances.

The inheritance tax is in many respects such a desirable form of taxation that its use ought to be encouraged rather than discouraged. It is certain, convenient, economical, and it places the burden on those most able to bear it. Assuming that we may, if we try, readily overcome some of the crudities in administration existing at the present time, its manifest advantages more than offset the greatest single objection against it, that it tends to dissipate the capital of the country.

If we retain both the progressive income tax and the progressive inheritance tax, for both the Federal Government and the States, reform the general property tax in some such way as suggested in the preceding sections of this chapter, modify our tariff in the direction of tariff for revenue only, and make other minor changes in our various tax laws, then we shall have a justifiable, if not a perfect, tax system. During the first quarter of the twentieth century we have made notable progress in the direction of justice in taxation. There is good reason to hope that this progress will continue.

EXERCISES

1. What is meant by avoidance of taxation? By evasion? By shifting?
2. Is our federal system of taxation more just at the present time than it was twenty-five years ago? Why, or why not?
3. Who ultimately pays import duties? Export duties? Why?
4. It has been stated that the general property tax as levied by our States has been a notoriously bad tax. Give reasons.
5. On what grounds is a progressive income tax justifiable? A progressive inheritance tax?
6. Some economists hold that a progressive inheritance tax dissipates the capital of a country. State arguments pro and con.
7. The State of Florida on May 29, 1926, gave notice in the United States Supreme Court that she would challenge the new federal policy of remitting to States which have such levies a part of the inheritance taxes imposed by the new Federal Revenue Act. Florida charges unconstitutional

discrimination against Florida as well as against Alabama and Nevada, which have no state inheritance taxes.

A prominent citizen of Florida publicly denounced the federal law as a communistic and bolshevistic law enacted by Congress at the insistence of other States to force Florida against her constitution, against her will, and against her interests to levy a state inheritance tax, because the administration of the affairs of these other States has been so wasteful and extravagant that without levying inheritance taxes they cannot raise enough revenue to pay their expenses. (See *Commercial and Financial Chronicle*, July 31, 1926, p. 532.)

Discuss the action of the State of Florida and the statements of its prominent citizen.

REFERENCES

I

Carver, T. N. *Essays in Social Justice*, chapter 17.
Edie, L. D. *Economics: Principles and Problems*, chapters 34 and 35.
Ely, R. T. *Outlines of Economics* (1923 edition), chapters 31–34.
Fairchild, Furniss, and Buck. *Elementary Economics*, chapters 44–49.
Seager, H. R. *Principles of Economics* (1923 edition), chapters 26–28.

II

Bullock, C. J. *Selected Readings in Public Finance.*
Jensen, J. P. *Problems of Public Finance.*
Lutz, H. L. *Public Finance.*
Seligman, E. R. A. *Essays in Taxation.*

CHAPTER XXXIX

PROBLEMS OF AGRICULTURE

1. Introduction. In 1920 American agriculture fell into a period of severe depression from which it has not at the present writing (1927) emerged and the end of which is not in sight. As in former periods of depression, the farmers in their present hard times are inclined to turn to the government for help, and Congress has been busy discussing various legislative measures designed to lighten the farmer's burden and to bring him back once more to prosperity. In view of the great importance of the agricultural industry and the likelihood that the peculiar problems of the farmer will continue for years to occupy the attention of the government, it seems desirable to devote a chapter in this book to the discussion of the fundamental conditions that tend to produce such unhappy results in agriculture that farmers are of all classes of business men the least prosperous, and farm hands are apparently the worst-paid wage earners. It has seemed wise to place this discussion near the end of our book because it involves a consideration of most of the fundamental principles of economics discussed in the preceding chapters.

2. Agriculture a highly competitive industry. Although agriculture in the United States represents an enormous industry, or group of industries, in the aggregate, it is essentially an industry of small-scale production. Approximately one fourth of all persons gainfully employed in this country are engaged in agriculture, and the rural or agricultural population comprises nearly two fifths of our total population. In 1920 the total number of farms in the United States was 6,448,000, averaging in size 148 acres. Although here and there large farms are operated with a considerable number of hired hands, the typical farm is one operated by the owner, or renter, by the labor of himself and members of his family, or possibly with the aid of one hired hand. The small farm has remained the typical farm because the economies of large-scale production are limited in agriculture, owing mainly to the difficulties of supervision and the seasonal nature of the work. This point has already been discussed in Chapter XIII, Section 11, and need not be elaborated here.

In the grain, cotton, live stock, and other important agricultural industries, the numerous small producers are operating under conditions of unfettered competition. For the most part they are organized neither for buying their producers' goods nor for selling their products. Agreements to restrict output and thus obtain higher prices are often talked of, and organizations to restrict output are sometimes projected, but the number of farmers has been too great, and the individuals too widely scattered and too little inclined to coöperate, for such projects to prove successful.

3. **The nature of the farmer's income.** If a farmer owns his farm and is successful in his operations he enjoys an income which is a composite of wages, interest, rent, and profit. But under the severely competitive conditions that exist in agriculture this income tends to be small, particularly that part of it which may be considered wages and profits. In any competitive industry profits, as we have indicated elsewhere, tend to disappear for the industry as a whole. The losses tend to offset the gains. Only the exceptionally able producers secure profits in the long run. If the average producer is making profits old producers tend to expand output and new producers enter the field until prices fall, or costs rise, or both. This is particularly true in the case of a small-scale industry that it requires neither great ability nor considerable capital to enter, and such an industry agriculture is.

Consider next the farmer's wage income. As a farm laborer he is worth no more than equally able hired farm hands. But farm hands represent one great class of unorganized laborers whose wages are determined according to the principle of marginal vendibility, under severely competitive conditions, in an industry that as a whole is chronically poverty-stricken as compared with other industries in the United States. The wages of farm hands have in recent years been notoriously low as compared with the wages of workers of equal ability in other industries. Their wages have been lower than they otherwise would be by reason of the fact that in many cases the hired hand must compete with the unpaid labor of the farmer's wife and children. That is to say, in many cases, rather than pay the current rate of farm wages, the farmer employs his wife and small children at work for which they are physically not fitted, and assumes that he gains by so doing — the labor being free. Since, how-

ever, his competitors may do the same, this method of cutting costs in the end brings no net gain, but reacts upon himself in cutting down his own value as a farm worker, and thus his own farm income. That part of the farmer's income represented by wages and profits tends, therefore, to be little, if any, more than very low wages for his own labor.

If the farmer owns a fertile, well-improved, and well-equipped farm he may enjoy a substantial income in the form of economic rent and interest on capital. Since, however, in 1920 the average number of acres per farm was only 148, and since only about 62 per cent of the farms were owned by their operators, and since a large proportion of these farms were heavily mortgaged, it is obvious that many farmers enjoy little or no income from the rent of land, and probably very little in the form of interest on capital invested in farm equipment. Farms are the more likely to be mortgaged because, for reasons already discussed, the price of farm land tends constantly to represent the capitilization of anticipated future rentals rather than the capitalization merely of present rentals. This not only makes it require more money to buy a farm but tends to make the income on investments in farm land abnormally low. Statistics show that in recent years, and before the present agricultural depression, farm wages and farm incomes have been only half or less than half as high as wages and incomes in other major industries.

The difference between the real income of the farming population and the real income of the urban population is less than the difference between the money incomes of the two groups, on account of the lower cost of living in the country. Nevertheless a marked disparity has existed for many years, and the difference has grown greater since the war.

4. Wages and profits in other industries. Contrast now the conditions of unfettered competition that prevail in agriculture with conditions in various other major industries. First of all note that in other industries labor is in large measure organized into powerful trade or industrial unions which exert a strong pressure to maintain wages above the competitive level of unorganized workers. This naturally tends to increase the money costs of production of those producers employing organized workers. But since in various in-

dustries these higher labor costs affect the marginal producers as well as others they simply raise the general level of costs and do not tend to come altogether out of profits, but rather tend to raise the prices at which the competitive producers manage to sell their products. The strong building trade unions are perhaps the best example of this. Through organization bricklayers, for example, get as much in wages in a week as farm hands of equal natural ability get in a month, or even more. But the building contractors still manage in many cases to realize good profits, because they get high prices for their buildings. If the building trades were unorganized, wages in the building industry would be much lower and the prices of buildings would be lower.

Next it may be noted that competition over a wide range of industries is either absent or more or less restricted. The great public utility industries, as noted in an earlier chapter, are practically free from competition, and except for government regulation are in a position to charge the price that will yield the greatest net return. Government regulation prevents for the most part such a policy of extortion, but permits, generally speaking, a rate that yields a fair return on the capital invested after liberal allowances for operating expenses and depreciation. Ordinarily the intention of the regulating commissions is to permit a return of 6 per cent or more on the investment. Similarly the railroads are to be permitted by the Federal Government to earn at least a fair return on their investment, at present 5.75 per cent, although this rate is not guaranteed. It seems, however, only a matter of time until all well-managed railroads will be able to earn this minimum, unless the present policy of the government is reversed; and many railroads are even now earning more. In the manufacturing and metal-extracting industries production is carried on by a comparatively few large producers, among whom competition is more or less restricted by open or secret understandings not to expand output unduly and thus bring prices down to costs of production. In merchandising, trade organizations of various types tend to prevent the free play of competition. Even where no trade agreements are made among manufacturers and merchants the extensive use of trade-marked products, widely advertised and sold at a fixed price, yields advantages similar to those gained by the monopolist. Finally our pro-

tective tariff policy protects most of our manufacturing industries from unfettered foreign competition, whereas our great agricultural industries, producing an exportable surplus which must be marketed outside the country, must accept prices determined by world-wide competitive conditions. The fact that there is a so-called protective duty on wheat and other farm products affords small consolation to the farmer, since the domestic supply must be sold at the price that the exportable surplus will bring, and that price is not affected by the tariff.

5. Movement of population from the farms. The relative advantages of other industries over agriculture have not always been so marked as during the last thirty or forty years, since some of the fundamental conditions accounting for these advantages — large-scale production, monopolies, restraint of free competition, and the organization of the industrial workers — have been comparatively recent developments in American industry. But to the degree that they have existed they have tended to draw our population away from the farms into other occupations. There is a strong tendency for people to seek out their best opportunities for economic advancement. This movement of the population is plainly shown in Table XXXIV.

TABLE XXXIV. COMPARATIVE GROWTH OF RURAL AND URBAN POPULATION IN THE UNITED STATES

CENSUS YEAR	POPULATION (thousands)			PERCENTAGE INCREASE OVER PRECEDING CENSUS		
	Rural	Urban	Total	Rural	Urban	Total
1880	32,950	17,206	50,156			
1890	35,891	27,057	62,948	9.5	58.4	25.5
1900	39,313	36,682	75,995	9.5	61.4	20.7
1910	41,637	50,035	91,672	5.9	36.4	21.0
1920	42,437	63,274	105,711	1.9	26.5	14.9

During the forty years from 1880 to 1920, when urban population increased from 17,206,000 to 63,274,000, or more than threefold,

rural population increased from 32,950,000 to 42,437,000, or only 29 per cent. In not one of the four decades was the average increase in rural population as much as 1 per cent a year, and in the last decade it was less than 2 per cent in the whole ten years. On the other hand, in none of the four decades was the increase in urban population less than 26.5 per cent, or less than an average increase of 2.65 per cent a year. In short, the urban population increased at a rate several times greater than the rural population. And what is of more significance for our purpose here, the rural population increased less rapidly than the natural increase represented by the difference between the birth rate and the death rate of such a population as ours. In other words, the young folks refused to stay on the farm.

6. Why more farmers did not move to town. The question may well be raised why did not the movement away from agriculture proceed rapidly enough to cut down agricultural production and raise the prices of agricultural products to a level high enough to put farm wages and incomes on a par with city wages and incomes? There are various reasons why this result did not follow from the unsatisfactory agricultural conditions.

In the first place there is the lure of the land and the spirit of independence to consider. Many men find the ownership of a piece of land a source of pleasure. Combined with this natural desire to own a piece of the earth over which they can walk with the pride of dominion, there is the spirit of independence which makes it almost impossible for some men to call another man master. For these two reasons many farmers will cling to the soil at almost any cost rather than take up their residence in a crowded city and work regularly for others.

Next there is the enchantment of distance, the spirit of adventure, and the lure of the unearned increment to bear in mind. Farmers who have failed to do well in the East hope to do better in the West. Those who have failed in the North move South. The writer knows personally a farmer who beginning in Iowa, and not doing well, moved west to Nebraska, then south into Kansas, then east into Missouri, and finally after perhaps ten years back once more to his native state, Iowa, with less money but more experience than when he started round the circle. There are thousands of similar cases.

The hope of doing better in the country elsewhere keeps great numbers of farmers from drifting to the cities. Then there is the ever-present hope that the price of land will rise. This tends not only to keep farms in older sections occupied, but leads to the premature opening up of new lands. In the opening up of new lands our Federal Government has taken a hand, first in its homestead policy and then in its irrigation policy in the desert lands of the West.

There must be considered, too, the obstacles in the way of free movement of those who want to give up farming. There is the investment in farm and equipment, which often can be disposed of only at a sacrifice, particularly in periods of depression, when the strongest incentive to quit the farm exists. There is, moreover, the uncertainty of finding remunerative employment in any other occupation. For the farmer who has reached or passed middle age to change occupations is hazardous, and often he has reached this age before he fully realizes the limited opportunities that agriculture presents. There is the possibility that he must join the ranks of the unskilled laborers in the city, and this has meant in the past putting himself on a level with raw immigrants, Mexicans, or negroes. Farmers who move to town and engage in business at the age of fifty or sixty often fail and lose their life savings in the venture. It is only the young persons who can leave the farm with some degree of assurance that they are not jumping from the frying pan into the fire. Finally there is the pure economic inertia that tends to keep many men in the occupation that they and their fathers before them were born into. One or two sons of the three, four, or five in the family move on. The others stay where they are.

Nevertheless, in spite of all these obstacles to the free movement away from the relatively disadvantageous industry of agriculture, the movement would probably in recent years have been strong enough to bring about some degree of financial improvement had it not been for the widespread introduction into agriculture of the farm tractor, the motor truck and other labor-saving devices, and the substitution of gasoline-driven for horse-drawn vehicles elsewhere. These labor-saving devices have made it possible for a small number of farmers to produce more than a large number produced before, and the substitution of gasoline power for horses has robbed the farmers of a market for horse feed. Many thousands of acres

that but for this latter change would be devoted to growing oats and hay for horses are now being devoted to other crops and thereby adding to the depression of prices. A powerful factor tending to depress prices of farm products during periods of expansion of output, and one that is often overlooked, is the inelasticity of demand for most farm products. The quantity of grain, meat, butter, eggs, cotton, wool, etc., demanded in the United States tends to grow little, if any, faster than our population. Per capita consumption tends to remain constant, and a small increase in production per capita tends quickly to bring a sharp fall in prices of farm products.

7. The immediate causes of the depression in agriculture. In the foregoing discussion we have been concerned with certain fundamental conditions operating over a long period of years and tending to keep farm wages and farm incomes below the level of wages and incomes in other industries. These conditions tend to produce a more or less chronic state of depression in agriculture, but do not alone account for the severe depression that overtook agriculture in 1920. This depression grew primarily out of the period of inflation during the war and in 1919, the first year after the war. How this period of inflated commodity prices brought on a boom in farm land has already been explained in Chapter XI, Section 8, in connection with indirect costs in agriculture. In short, the high price of wheat and corn and other agricultural products brought a great temporary increase in economic rents, which was recklessly capitalized as permanent and led to much buying and selling of farm land at extravagant prices. The farmers who bought the land at enormously high prices borrowed large sums on mortgages to help pay for it, and when prices of farm products fell hundreds of thousands found themselves, after meeting operating expenses and their own cost of living, unable to pay the interest on their loans.

The difficulties of these farmers were greatly increased by the fact that during the period of deflation in 1920 and 1921 the prices of farm products declined much more severely than the prices of commodities in general, and during the following years remained on a relatively lower level than the prices of other commodities as compared with the relative prices of these commodities in the pre-war period. Thus these victims of land speculation found that their costs had declined less than the prices of their products, that in some

cases their land, instead of yielding a higher rent than before the war, yielded lower rent, and that their mortgage was greater than the actual value of land based on the capitalization of the rent after deflation.

The period of inflation followed by deflation injured not only farmers who got caught in the land speculation boom, but other farmers as well. While prices were rising many farmers prospered, since the prices of farm products rose relatively more rapidly than other commodities — that is, more rapidly than the farmer's costs of production and the cost of living, particularly during 1917, 1918, and the early part of 1919. But as already indicated, when prices fell, farm product prices fell more severely than other prices and have since tended to remain closer to the pre-war level than other commodities. In other words, the farmers' costs of production and cost of living have for several years (1921–26) remained farther above the pre-war level than the prices of their products. All this is clearly shown in Figure 14. On the average the farmer must now sell more farm products to buy a given quantity of producers' or consumers' goods than before the war, and is therefore relatively worse off than before the war.

To add to the farmer's trouble taxes rose during the period of inflation and rising government expenditures, and have since remained on a higher level than the prices of farm products relatively to pre-war conditions. And, as indicated in a preceding chapter, the farmer tends to be particularly hard hit by state and local taxation under the general property tax so widely in operation.

Why prices of agricultural products declined more severely after the war than prices of commodities in general is readily explained. When the general collapse of prices occurred in 1920, manufacturing industries tended to restrict output to fit the new conditions of demand and thus prevented the fall in prices of their products from being as severe as it otherwise would have been. Manufacturing industries can more readily restrict output than agricultural industries since their direct costs — labor and raw materials — are a large proportion of their total costs. Moreover, since manufacturing industries are in many cases in the hands of a comparatively small number of large producers, or at any rate are dominated by a small number of large producers, an open or tacit agreement to restrict

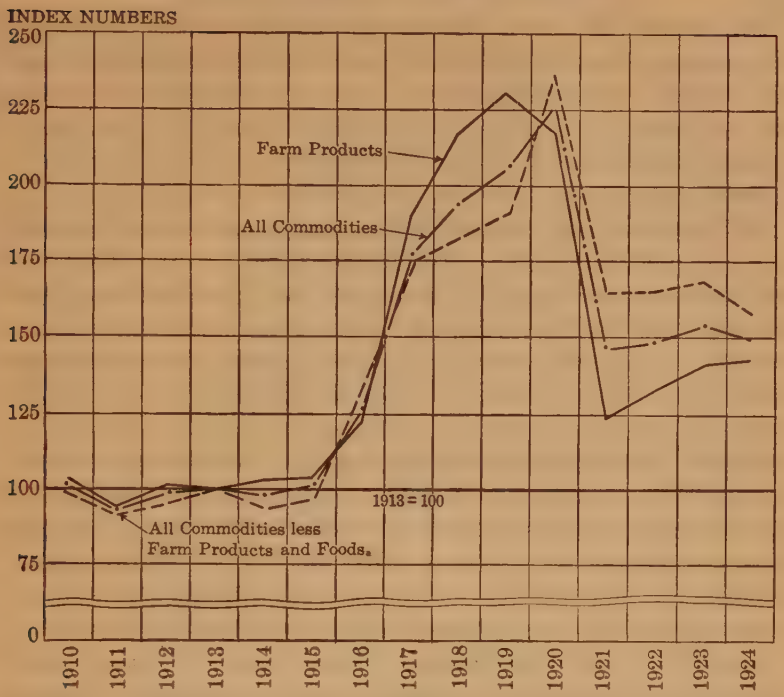


FIGURE 14. COMPARATIVE INDEXES OF WHOLESALE PRICES OF AGRICULTURAL AND OTHER PRODUCTS

(From *Commerce Yearbook*, 1924, p. 91)

output is easily possible, at least temporarily. As for the construction industry, it enjoyed a post-war boom based on the accumulated building shortage during the war years. This kept up the prices of building materials and building labor. Railroad and public utility rates naturally remained high, as fixed by the government. Now on the other hand, on account of their large numbers, farmers were in no position to make an agreement to restrict output. Moreover, on account of the large part that indirect costs represent of total costs, it did not pay individual farmers to cut down production materially. It should be noted that when a large-scale manufacturer restricts output or closes down his plant the burden of unemployment is shifted to his employees. But when a farmer does the same he puts himself out of work and bears the burden alone. Thus output remained practically at the high level that it had attained during

the period of war prices and war propaganda which urged farmers to increase output as a patriotic duty. Finally, after 1921 exports of grain tended to decline through the inability of Europe to buy and the increased competition from other countries. This is not a complete catalogue of the factors concerned, but it suffices for our present purpose.

8. Remedies for the farmer's ills; quack nostrums. Numerous remedies have been proposed, and some have been applied, to cure the farmer's financial ills. It is natural that this should be so. In the first place, sound public policy requires that agriculture be maintained in a healthy condition. In the second place discontent among the farmers threatens political upheavals, since the party that captures the farmer vote is likely to win elections. Some of the remedies proposed are transparent political devices designed primarily to capture farmer votes, and at their best are worthless and at their worst contrary to sound principles of economics and likely, if put to the test, to do far more harm than good. Others might, if applied, afford temporary relief to certain classes of farmers, although providing no permanent solution of agricultural problems. Finally there are some remedies which, if wisely and consistently applied, may do much to put agriculture on a sounder and more prosperous basis. Let us consider some of these remedies.

We need not linger long over the quack nostrums of politicians and economic illiterates. These include such measures as appointing "dirt farmers" to office, printing paper money to be lent to farmers at a low rate of interest, fixing a minimum price on farm products by law, and stopping speculation in farm products. No solution of agricultural problems is provided by appointing a "dirt farmer" on the Federal Reserve Board, as has actually been done, or even by placing a few dirt farmers on the Tariff Commission, the Interstate Commerce Commission, and the Federal Trade Commission. The proposal to print government paper money and lend it at a nominal rate of interest, as 2 per cent, to farmers who are in debt, is a hardy perennial that bobs up in every agricultural depression. The vicious nature of this remedy should be sufficiently clear to all readers who have perused the foregoing chapters of this volume, and no further discussion of such a proposal is required here. Nor is it necessary here to discuss at length the economic

fallacy involved in the idea that the government by fixing a minimum price on farm products could readily solve the agricultural problem. In order to maintain a higher price than the competitive market price for any farm product, the government would have to stand ready to purchase all that was offered at the fixed price. But when the government undertook to dispose of its holdings it would have to take the price determined by marginal vendibility, which is the competitive market price. It could obtain a higher price, normally, only by restricting the quantity offered for sale. But if it fixed the legal price for the farmer's product above the present level it would thereby encourage expansion of output, an expansion limited only by the extent to which the price was raised. The government would then be compelled to lower its selling price progressively as it offered larger and larger quantities for sale, and thus bear an enormous financial loss, or to limit the amount it would permit the farmers to produce, or to destroy part of the supply that had been produced. The difficulties here suggested are alone great enough to condemn this "remedy."

As for stopping speculation in farm products by law, that would in all probability be impossible, and if possible, would do more harm than good, as has been pointed out in our chapter on risk, insurance, and speculation. Despite the evils that accompany speculation in grain and cotton, the speculative markets tend to raise rather than to lower the average price received by the farmer for his products. In respect to speculation it would seem that the real remedy for the farmer is to learn to use the speculative markets to free his business to some degree from risk, as do the millers and grain dealers, through the process of hedging. Some farmers, in fact, have already learned how to do this.

9. The protective tariff and dumping. Advocates of a protective tariff for manufactures must admit that such a tariff raises the prices of the protected commodities above the world-competitive price, since if this were not so, no protection would be required. Since the products of manufacture constitute a very large proportion of the farmer's producers' goods and consumers' goods, the protective tariff on manufactures tends to raise both his costs of production and his cost of living. It becomes necessary, therefore, to show that the farmer obtains some counteracting advantages.

So we have the home-market argument, which undertakes to show that the protective tariff by building up home industries gives the farmer a better market for his products. The weakness of this argument has been pointed out in Chapter XXXV, Section 13, and need not be discussed here. In view of the weakness of the argument, protectionists have sought to placate the farmer by giving him protection on his products. But while this has seemed satisfactory to many farmers who do not understand economic theory, the farm leaders of recent years who have studied economics are aware of the fact that protection does not protect in the case of a commodity of which there is an exportable surplus, such as wheat, corn, cotton, meat, lard, and other important farm products in the United States. The exportable surplus is sold in the world-competitive market for what it will bring. What the surplus bushels of wheat are worth in New York is likely to be what they are worth in London less the shipping charges. Rather than export them, their owners will sell them in the home-market for less than the London price. But the exportable surplus is not any particular lot of wheat, corn, cotton, or meat, but any part of the supply in general. The domestic price tends, therefore, to be dominated by the foreign price. Whether or not there is a duty on imports is a matter of indifference, except when there is a shortage and imports become necessary.

Since this has now become pretty generally understood by farm leaders and even by the rank and file of the farmers, a demand is being made that farmers actually be given protection and not merely the pretense of it. This protection, as represented by the McNary-Haugen Farm Relief Bill, passed by Congress in February, 1927, and promptly vetoed by the President, takes the form of dumping the agricultural surplus products on foreign markets. It is proposed, in brief, that under government regulation or control, the exportable surplus shall be taken out of the home market and sold in foreign countries at any price it will bring. Thus an artificial scarcity will be induced at home which will make it possible for the domestic supply to be sold at a price above the world market. It would be necessary, of course, to place import duties on such commodities, so that the quantities dumped could not be shipped back in and break the market. Had the McNary-Haugen Bill gained the approval of the President, its execution would have presented serious

theoretical and administrative problems for which the text of the bill itself offered no solution. In the first place there would have arisen the question of how large a quantity of a given product, wheat, for example, is to be dumped abroad, and how great an artificial scarcity is to be induced at home. With a given quantity being produced, the exportable surplus will be greater or less accordingly as the domestic price is higher or lower. Or conversely, the greater the proportion of the crop bodily dumped on foreign markets at sacrifice prices, the higher will be the scarcity-induced prices at home. Presumably the intention would be to raise prices of agricultural products to a "parity" with the prices of other commodities. Just what the price of wheat would need to be per bushel, or of cotton per pound, to maintain this parity it is hard to say. Possibly parity would be reached when the prices of farm products bore the same relation to prices of non-farm products as in 1913, or some other arbitrarily chosen year. Dumping would cease when in the judgment of government officials the proper price was reached. A second theoretical difficulty would be this: the artificially enhanced price would encourage expansion of output and would compel an increasingly larger proportion of the total output to be dumped abroad, at less than domestic prices and at less than cost of production. A third difficulty would be retaliation by foreign countries against our dumping of farm products to the great injury of their agricultural industries. Other countries would tend to increase the tariff on imports from the United States. A fourth difficulty is suggested by the protest of New England cotton manufacturers against the bill on the ground that they would be placed at a disadvantage in international competition if compelled to pay higher prices for cotton than foreign producers paid. Finally there come the difficult problems of administration. If the government shouldered the loss through buying up part of the supply at domestic prices and selling at the lower foreign price the difficulties of administration would be small, but the loss to the government would eventually be staggering. The McNary-Haugen Bill proposed, however, to compel producers to stand the loss on the quantity sold abroad, in proportion to the quantity each produced, by a so-called "equalization fee." To collect this fee from the millions of farmers would have involved an extremely complicated scheme of adminis-

tration requiring the services of thousands of government employees, and possibly subject to grave abuses.

This project is economically unsound and undesirable. But it is a logical project for the industries producing an exportable surplus to bring forward to place them on an equality with the industries protected by the tariff. From the point of view of economic theory, however, it seems desirable to place all industries on a par by reducing the tariff rather than by dumping the exportable surplus of the exporting industries; by taking the stilts out from under the protected industries rather than by mounting other industries also on stilts. If reduction in the tariff is undertaken, however, it should be gradual, for reasons presented in Chapter XXXV. This lengthy discussion of a current legislative project would hardly be warranted in this volume were it not for that project's close relation to the important principles involved in the controversy on protection and free trade. The McNary-Haugen Bill has brought squarely before the country the question of subsidizing some industries at the expense of others.

10. Marketing of agricultural products. There is a widespread belief that the farmer is being exploited by the various middlemen who stand between him and the ultimate consumer and reap an unreasonable toll, such as the miller, the baker, and the hotel keeper, who in the aggregate receive many times as much for the flour and bread made from a bushel of wheat as the farmer receives for the wheat itself. Studies of the department of agriculture indicate, however, that the admittedly great spread between the price the farmer receives and what the consumer pays is accounted for almost wholly by the cost of performing marketing services. The net profit of the distributing agencies rarely runs over five per cent of the price the consumer pays, and is generally less than that. The costs of production of the distributing agencies are the main thing, and account for about ninety-five per cent of the spread between the prices the producer receives and the prices the consumers pay.[1] It is probable that these costs could be considerably reduced, either by concerted action and more intelligent organization of the present distributing agencies, or through coöperative marketing by the farmers themselves. Thousands of coöperative organizations of

[1] United States Department of Agriculture, *Yearbook*, 1924, p. 43.

farmers are already in existence, and in many cases the results of their operations have been highly satisfactory.

The benefits to be derived from coöperative marketing have been strikingly shown in the case of citrus fruit growers of California. Packing charges and marketing costs were reduced. Modern packing and precooling plants were developed, and the grading of fruit was improved. Further economies were effected when the coöperators used their marketing organization for the coöperative purchase of supplies. Finally, by coöperative advertising these fruit growers stimulated the demand for their product, so that in the twenty years ending in 1922–23 they had increased their market tenfold.[1] Not every agricultural industry could realize such a variety of benefits from coöperative marketing, but most agricultural industries might realize some of these benefits. If individual producers do not find it feasible to coöperate with their fellow producers in marketing, they may in many cases develop a trade-marked specialty just as manufacturers do, which will sell at its own price, and not be dragged down to the competitive price level of the commodity in general. A good example of this is eggs. Consumers will readily pay five to ten cents a dozen extra for eggs that they can trust. Similarly, by establishing a reputation for selling only high-grade stuff producers may develop a special market for many other agricultural products, including milk, butter, apples and other fruits, and potatoes. Even in the case of such staple products as wheat and corn some producers, by observing special care, could raise grain of extra good quality to be sold for seed at more than the general market price, just as many live-stock growers now raise and sell thoroughbred live stock for breeding purposes. Fortunately many farmers are already aware of the advantages to be gained from these various sources. Naturally the methods here suggested are limited in their application, since not every producer can produce products superior in quality to those of all his competitors. Yet if all producers turned out products superior to the average of to-day, it is probable that the average prices obtained would be somewhat higher than those now prevailing, other things being the same. Good eggs will always command a better price than bad eggs, even if marketed in the same quantity. It is probable, too, that farmers by

[1] United States Department of Agriculture, *Yearbook*, 1924, p. 43.

supporting scientific research might find new uses for farm products and thus tap new sources of demand: for instance, gas, carbon, oil, paper and other products may be produced from straw or corn stalks. So long as farmers specialize in producing only food products they cannot hope for a rapidly expanding market, since population grows slowly and the capacity of the human stomach is limited.

11. **Agricultural credit.** One of the chronic complaints of the farmer is the scarcity and high cost of loans. Farmers whose capital is limited may need loans of three kinds — short-term loans and long-term loans, and a third class intermediate between the first two. Short-term loans running from three to six or nine months they require to finance their current operations of the year — to cover the expenses incurred between the time of planting and the time of selling the crop. Live-stock growers sometimes require longer loans, running from one to three years, to finance the feeding of a bunch of steers or the growing of a bunch of mules. Long-term loans, or mortgage loans, are required to finance the purchase of farms, the farmer often having only half or less than half enough money of his own with which to pay for the farm he desires to buy. Owing to the weakness of the farmer in bargaining with the money lenders, the uncertain security he has been able to offer, or the scarcity of loans offered in his market, he has in the past been compelled to pay high, and in some cases, extortionate rates of interest. Recent federal legislation has improved credit conditions for the farmer in respect to all three classes of loans. Federal Reserve Banks may under the law rediscount agricultural paper having nine months to run, whereas other commercial paper may be rediscounted only up to three months. Intermediate Credit Banks and National Agricultural Credit Associations have recently been created to provide the farmer more fully with intermediate loans running up to three years. And Federal Land Banks, National Farm Loan Associations, and Joint-Stock Land Banks have been established to provide him with a more liberal supply of long-term mortgage loans. Moreover, national banks have been relieved of some of the former restriction on lending money on farm mortgages.

Another device that has improved the credit facilities of the farmer is the system of federally licensed warehouses. Farmers who

want to hold their products for sale later at possibly higher prices, but who need some ready cash, may place them in warehouses licensed and inspected by the Federal Government. For the stored products the producers receive warehouse receipts which are becoming widely recognized by bankers as the best form of security for loans on agricultural products. Among products considered eligible for storing under the warehouse law are cotton, wool, grain, tobacco, peanuts, potatoes, and broom corn.

These various credit laws have benefited a great many farmers, and as farmers learn to utilize them to better advantage the benefits derived from them will be materially increased.

12. Ultimate effects of lower costs and higher prices of farm products. These various measures here discussed, designed to bring prosperity to the farmer, have primarily two purposes — on the one hand to reduce costs of production, and on the other to raise prices of farm products, to the end that the farmer may enjoy a larger net income than at present. Suppose both these results are achieved, and that farmers in general enjoy lower costs and higher prices what will be the probable result in the long run?

Some interesting possibilities suggest themselves to the student of economic theory. First of all, profits in agriculture would be enhanced, making agriculture a more attractive business. At the same time credit would be more easily obtained. This would encourage more men to engage in agriculture, and would bring about an expansion of the industry which would tend both to reduce prices of agricultural products and to raise costs of production, so that the good results obtained from our remedies would be in part nullified. The increased costs would result primarily from the greater demand for farm land, which would rise in rental value or in price, and from the greater demand for farm hands, which would tend to raise the level of agricultural wages. The profits that tended to emerge as the result of the temporary higher prices and lower costs would therefore tend quickly to disappear, leaving the farmer's income once more to consist primarily of wages for his labor, interest on his capital invested in farm equipment and improvements, and rent on his land. Interest on his capital would probably remain unaffected by the expansion, so that if any increase in farm income remained as the final outcome of the remedies ap-

plied it would be in the form of higher wages for the farmer's own labor, and higher rent on his land. To the extent that the final result would be represented by a higher level of farm wages, practically all farmers would benefit in the long run, since practically all farmers' income consists in part of wages. To the extent that the final outcome meant merely higher economic rent, it would not benefit all farmers, but only those who owned land before the higher rents emerged — and, it may be added, their heirs.

All farmers who rented land, and all who bought land after the rise in rents and in prices of land took place, would gain nothing from this source. It might be urged that even if the newcomers had to pay higher prices for their land they could borrow more cheaply than before. But it should be noted that the price of land tends to be the rental value capitalized at the current rate of interest, so that the lower the rate of interest on farm loans, the higher tends to become, almost automatically, the price of farm lands. The very remedies that we apply, then, to improve agricultural conditions may bring about a rise in land values that will plunge future buyers of land even more deeply in debt than if our remedies had not been applied.

13. A suggested solution of the farm problem. The foregoing discussion may seem to indicate that there is no solution for the farm problem — no method of restoring all classes of the agricultural population to a condition of prosperity equal to that prevailing in other industries. But to conclude that such is the case without first considering some solutions suggested by the analysis, in sections 1–7 of this chapter, of the fundamental causes of agricultural depression, would be unwarranted. That analysis may be summarized as follows:

Agriculture being an industry of small-scale production, the average farmer's income in the form of interest on capital or rent from land is small. Competition being unrestricted, production tending to expand as a result of new lands being brought under cultivation and of labor-saving devices being introduced, and demand for farm products being inelastic, the prices of farm products tend constantly to fall below the cost of production of the farmer of average efficiency, so that comparatively few farmers enjoy profits, and many suffer losses. Farmers with small gross in-

comes cannot pay high wages, and wages of farm laborers tend to be very low. Lack of organization of farm laborers contributes to this result. Low wages for farm hands tend to depress the farmer's income, which consists in large part of wages for his own labor. Restricted competition or absence of competition in other industries tends to maintain a relatively high price level for non-agricultural products, and this increases both cost of production and cost of living for the farmers. These unfavorable economic conditions in agriculture naturally cause a drift of population from country to city, which is strikingly illustrated in Table XXXIV on page 782. But for various reasons the flow of population from farm to city is not great enough to offset the natural increase in rural population and the improvements in methods of agricultural production, so that output tends constantly to be so great as to depress prices of farm products and to keep farm incomes low.

Such being the fundamental causes of low farm incomes, consider the obvious remedies. Organization of farm laborers might be suggested as a means of forcing up farm wages. Higher farm wages, if they increased costs of all farmers alike, might be shifted to the consumer in higher prices, in the manner of an excise tax. Could this be done practically the whole farm population would benefit, since the income of most farmers consists in part of labor income. But organization of farm hands would be exceedingly difficult to achieve because they are widely scattered and in many cases are casual laborers — drifters. Organization of farmers themselves might also be suggested, with a view to restricting output and raising prices. But such organization is difficult to accomplish, and monopolistic restriction of output in any industry is pernicious and contrary to sound public policy. Reduction of the tariff and less restriction of output in other industries would bring some relief to the farm population in lower cost of living and lower cost of production, but for political and other reasons no substantial and permanent improvement can be expected from this quarter.

The only remedy for the farm problem that seems to the present writer to be of permanent and substantial value is one that combines the use of every possible labor-saving device in agriculture, to the end that per capita production in agriculture may be greatly in-

creased, and a public policy of encouraging the movement of population away from the farm. Let the surplus farm population be diverted into industries for whose products there exists an elastic demand. With the number of farmers and farm hands considerably reduced, while total production remains the same or increases, per capita farm income may be raised even in the face of falling prices for farm products. And it is probable that farm hands, renters, and farmers who owned their farms would all share in the gain. This suggested solution does not require the repeal of economic law by legislative enactment, but requires merely that we encourage by education and publicity a movement away from the farms which is already taking place on a grand scale, but not rapidly enough to accomplish effective results in placing agriculture financially on a par with other industries.

The remedy here suggested is designed primarily to give agriculture relief from its state of chronic depression resulting from fundamental economic conditions such as have prevailed in the United States during the last half century. It will of course not afford prompt relief to agriculture from the effects of the recent period of inflation and deflation. There seems to be no way of avoiding the evils of inflation and deflation other than to avoid inflation. Some temporary relief might be given to the farmers by prompt reduction of the excessive burden of taxation placed upon them by the general property tax, and perhaps in some instances by reduction of freight rates on their products.

EXERCISES

1. Contrast conditions in agriculture with conditions in other great industries in respect to the degree of domestic and foreign competition that prevails.
2. Which has grown more rapidly in the United States since 1880 — rural or urban population? Why?
3. If, as many farmers maintain, urban population is more prosperous than rural population in the United States, why do not farmers drift to the cities in such great numbers that agricultural production declines, and prices of agricultural products rise until farm incomes are once more on a par with other incomes?
4. What were the immediate causes of the post-war depression in agriculture? Did all farmers fare equally in this depression? Why, or why not?
5. If the project of dumping the exportable surplus of important farm products on foreign markets should be adopted, as is strongly urged by many farm leaders, in order to permit the domestic supply to be sold at a price

above the world market price, how would be determined the amount of the exportable surplus? What would be the effect on output?

6. If the price of farm products could be raised by dumping the exportable surplus, would the extra income of agriculture take the form of wages, interest, rent, or profits, or a combination of two or more of these four? Why? What difference would it make which form it took?

REFERENCES

I

Carver, T. N. *Selected Readings in Rural Economics*, part VI.
Edie, L. D. *Economics: Principles and Problems*, chapter 28.
Ely, R. T. *Outlines of Economics* (1923 edition), chapter 29.

II

Joint Commission of Agricultural Inquiry. *Report*, 1921.
Macklin, T. *Efficient Marketing for Agriculture.*
Taylor, H. C. *Agricultural Economics.*
United States Department of Agriculture. *Yearbook of Agriculture.*

CHAPTER XL

EVILS OF THE PRICE AND PROFIT SYSTEM AND REMEDIES PROPOSED

1. Main evils of present system are insufficient goods and leisure and long hours of irksome labor. The foregoing chapters represent an attempt to explain how production is carried on and according to what principles the product of industry is distributed among the persons taking part in production under the price and profit system. As the discussion has proceeded, various evils or defects of the price and profit system as it exists in the United States have been pointed out, and various suggestions for removing or mitigating these undesirable characteristics have been made. In this final chapter it may serve a useful purpose to consider further the shortcomings of the present industrial system and some of the remedies proposed to cure its ills.

The main evils of the price and profit system are that it does not provide most human beings in even the most favored countries with enough goods and services and enough leisure to live reasonably healthy and happy lives, and that it subjects the masses to long hours of irksome labor. Even in the United States, which leads all other countries in wealth and income per capita, the incomes of the vast majority of families are so limited that painful questions of economy arise in respect to food, clothing, housing, and even in respect to proper medical attention, the lack of which may mean suffering, deformity, or untimely death. For the average workman, hours of leisure are so restricted, hours of toil so long, and labor so irksome that his workshop might just as well be considered a prison in which he is confined for perhaps a third of his adult life. For the masses, life must often seem not a gift to be enjoyed but merely an interminable number of days of irksome and ill-paid toil, brightened now and then by a holiday or a bit of good fortune. Their happy and care-free hours are mere splotches of color on a drab and somber field of toil and poverty.

2. Economic conditions requisite for a happy life. From the purely economic point of view the conditions requisite for a happy

life are such an abundance of goods and services, such ample leisure, such freedom from irksome toil, that there is opportunity to develop to the full one's physical and mental powers and to enjoy them. This is not to say, of course, that the happiness of different individuals varies directly in proportion to the amount of goods, services, and leisure they enjoy, and inversely in proportion to the amount of labor they perform. There are other factors to be considered. But other things being equal, he whose economic conditions are favorable will enjoy life more than others less fortunately situated. The ideal industrial system would grant to every one the economic conditions requisite to a complete and happy life.

Obviously if a large proportion of the people have such unfortunate dispositions that they cannot be happy unless they have all things in greater quantity and of better quality than any one else, and find any kind of useful labor irksome, then the difficulties of devising an industrial system that even remotely approaches the ideal are insuperable. If, however, the vast majority of the people can free their minds of ignoble envy and greed, and can find joy in useful labor for a few hours a day, then the ideal is at least approachable even if unattainable.

3. **The price and profit system not ideal.** It must be admitted that the price and profit system of production and distribution falls far short of the ideal system. There are some who believe that its evils can be greatly mitigated by a careful analysis of the causes of them, and a systematic attempt to remove or modify those causes. There are others who believe that the system is hopelessly bad, that it can be but little improved, and that substantial improvements in the economic conditions of the masses can be realized only by scrapping the present industrial system and setting up some new type of economic organization, such as socialism or communism. In our chapter on The Functions of Government we have already discussed socialism and communism, and our conclusions in respect to the results of either of these isms were not at all optimistic. Socialism, we found, has some attractive features, but it also has undesirable features which might cause it to work in practice worse than the price and profit system. As for communism, we did not find it worthy of serious consideration as a possible solution of our economic problems.

Concerning all proposals to set up some new type of economic organization this may be said: Their advocates show a strong tendency to exaggerate the evils of the present system and to overlook the practical difficulties of operating their proposed system. Furthermore, they overlook the tremendous advance in material welfare which the present system has made possible in leading industrial countries during the last century and a half, and the strong probability of even more rapid advance in the future, and they exaggerate the advantages that would follow from the adoption of their proposed system, even supposing that their system would work well in practice. Finally they presuppose such fine human qualities in the directors of industry and the workers under the new system and such an absence of undesirable human characteristics as would make any system of production give splendid results, whether it were thoroughgoing communism or feudalistic capitalism. The writer is under the impression that we can get better results in terms of human welfare by studying and improving the industrial machine we have than by scrapping it and trying to construct a new one. If socialism or communism should eventually prove to be the economic goal of the human race we are more likely to get there safely by easy stages than by one great flying leap — by evolution rather than by revolution.

4. The two fundamental causes of poverty and long hours of labor. It has been stated that the main evils of the present system are that it does not provide the masses with enough goods and services and enough leisure to live reasonably healthy and happy lives, and that it subjects them to long hours of irksome toil. There are two fundamental causes of these evils — ineffectiveness of labor and inequality. So comparatively ineffective is labor at present that if every able-bodied person worked long hours and if the product of industry were distributed equally among all there would still be a great scarcity of goods and services. In other words, without inequality in working conditions and without inequality in the distribution of wealth and income the masses would still be subjected to long hours of tiresome labor and would live stunted lives for lack of goods and leisure. That inequality exists only makes a bad matter worse. Because many persons work only short hours, or at only attractive tasks, or not at all, the burden of long hours and dis-

agreeable work falls more heavily on the shoulders of others. Because a fortunate few obtain for themselves a superfluity of goods drawn from the already inadequate stock of goods in the industrial output, there is just so much less for the unfortunate majority.

There are, then, two ways of improving the economic conditions of the masses — namely to increase the quantity of goods produced per capita, and, if possible, per hour of labor, on the one hand, and to promote equality in conditions of labor and distribution of wealth and income on the other.

5. If incomes were equalized, all would be poor. It is easy to overestimate the gain that may come to the masses from a greater degree of equality in labor burden and in income. The idle rich and other loafers are more conspicuous than numerous, and if they were all set to useful labor the total output of industry would not be substantially increased nor would the burden of toil of the rest of the people be much lightened. As for the great disparity in incomes, one may easily draw wrong conclusions concerning the net gain to the poor by the distribution among them of the excess incomes of the rich. In our discussion in other chapters we have shown why such distribution of the rich men's income among the people would not represent an equal net gain for the poor. But even if the poor gained a dollar in income for every dollar taken from the rich, the gain would still not be a tremendous one. In 1918, for instance, government statistics show that 40 per cent of our national income was divided among 14 per cent of the people, leaving 60 per cent for the other 86 per cent of the people. Now if we had robbed the 14 per cent of all their income, and had handed it over *in toto* to the other 86 per cent, we should have increased their incomes by just two thirds, provided they had kept on working as hard as ever. But, as we have shown elsewhere, a considerable part of the income of the rich is already being used directly or indirectly for the benefit of the poor in the form of huge donations to philanthropic, scientific, and educational institutions, in the form of taxes, and in the form of savings which add to the industrial equipment of society and thereby increase the effectiveness of labor. It is doubtful whether the net gain to the great mass of our people would be more than 25 per cent if the total income of the country were distributed equally among all the people, since part of what the poor thus

gained directly, they would lose indirectly. We are considering here only the more or less immediate effects of such distribution of income, and not its more remote effects. But let us consider the subject further.

6. Greater gains possible from increasing effectiveness of labor than from equalizing incomes. Just because we cannot take enough from the rich to distribute among the poor to make all of these unfortunates rich is no good reason why we should not take what we can from the rich if it serves a good purpose. If we accept the law of diminishing utility, as all good economists must, then every dollar we take from the rich and give to the poor presumably increases the sum total of human enjoyment, and such taking and giving would be justified by the principle of the greatest good for the greatest number, which seems to have pretty general acceptance at the present time. This is merely a variation of the argument we have already presented to support progressive taxation. If we have our eye only on the immediate effects of the equalization of incomes then we might justify ruthless equalization. But equalization would have remote as well as immediate effects, and the former cannot be left out of consideration. Taking from the rich and giving to the poor will affect production. In some cases it may tend to increase the productiveness of industry, and in others to diminish it. Now the possible gains to the poor from increasing the effectiveness of labor are infinitely greater than the possible direct gains from equal distribution of wealth and income. Productiveness of labor may be doubled, trebled, quadrupled, for industry as a whole. In particular industries it has been increased in some cases a hundredfold since the industrial revolution. Labor may benefit more in ten or twenty years from wage increases following greater productivity of industry than it would benefit from distribution among its ranks of all the incomes of the wealthy.

The possible gains from greater productivity of industry are strikingly illustrated in Table XXXV. This table shows that the average "current income" per capita in the United States was $105, or 33 per cent greater in the five-year period 1922–26 than in the five-year period 1909–13. This is the increase shown after incomes in both periods are reduced to terms of 1913 dollars. If the workers may be assumed to have received an increase in wages pro-

portionate to the increase in total per capita income, they probably gained more from the increase in productivity of industry during this thirteen-year period than they would have gained by equal distribution of all income at the beginning of that period.

TABLE XXXV. ESTIMATED CURRENT INCOME PER CAPITA IN THE UNITED STATES [1]

YEAR	CURRENT DOLLARS	1913 DOLLARS
1909	$299	$312
1910	307	315
1911	309	312
1912	321	323
1913	329	329
1909–13 average	313	318
1922	597	369
1923	689	421
1924	700	426
1925	752	445
1926	770	455
1922–26 average	702	423
Increase 1922–26 over 1909–13 average		105

Now if it were possible to add to the benefits of the poor which result from greater production of goods and services the further benefit of flinging to them the money incomes of the rich it might be all very well. Suppose, however, that taking from the rich and giving to the poor slows down industrial progress, so that productivity of industry does not increase for a generation, or even diminishes! This is a possibility to be reckoned with. In taking from the rich to give to the poor we must be careful. If it increases productivity of industry it may be considered socially expedient and desirable. But if it diminishes productivity it is socially inexpedient and undesirable because in that case it will probably do more harm than good even to the poor.

Some methods of bringing about greater equality of incomes are

[1] From *News-Bulletin of the National Bureau of Economic Research*, February 21, 1927. The figures for all years are estimates, but those for the earlier years are more carefully computed than those for the later years, which are subject to revision when more complete data become available. None of the statistics in Table XXXV are exactly comparable with the figures given in Table I, on page 10, which were compiled several years earlier and on a somewhat different basis.

likely to increase productiveness of industry. Others are likely to diminish productiveness. Why this is so can be understood better after one has made an analysis of conditions favoring high productivity, and of the causes of low productivity of industry. Such an analysis is worth while for two reasons. First and foremost, it throws light on how we may increase the total output of industry, and second, it indicates the advantages and limitations of various equalitarian programs.

7. Conditions favoring high productivity of industry; healthy workers. The reader may recall that in our chapter on Differences in Wages we stated that the conditions favoring a large output of products per capita in any country are: first, strong, healthy intelligent, well-trained, and willing workers; second, rich and abundant natural resources; third, an ample supply of managerial ability of a high order; fourth, a great supply of capital, or man-made producers' goods; and fifth, sound political and financial conditions. Now, anything that tends to create or promote these favorable conditions tends to increase the productivity of industry, and anything that tends to destroy or prevent the development of these conditions tends to diminish the output of industry. Let us consider to what extent these conditions exist in the United States, and how, if at all, it may be possible to make industry more productive by improving conditions of production.

Begin with our workers — the rank and file of the army of industry. Man for man they compare favorably with the workers of other countries. But they are far from perfect in health, in intelligence, in training or education, and in willingness to work. To increase their natural intelligence, except in so far as this depends on health, is perhaps impossible, unless we are to embark on a program of applied eugenics, which would work out its results only through several generations. Passing by this possibility, which is only of more remote interest, let us consider the question of health.

How far short our workers fall of being physically sound is indicated by the fact that in the first draft for the World War one third of the men of the ages from twenty-one to thirty-one were rejected as unfit for active military service. Among older men the percentage of unfit would of course be even higher. Parenthetically we may remark that in Great Britain conditions were even worse. There it

was found that of every nine men of military age, eighteen to forty-two years, only three were perfectly fit and healthy. Of the other six, two were definitely infirm in health and strength, three were incapable of undergoing more than a very moderate amount of physical exertion and could almost be described as physical wrecks, and the remaining man was a chronic invalid.[1]

Obviously men who are unfit for military service are less fit for industrial service than men who are physically sound. Physical defects not only cut down the work span of a man's life, short enough at best, but they reduce his efficiency during the time he does work. It is of course impossible to make every one perfectly fit and healthy. But it is easily possible by means known to science to-day, and not difficult to apply, to make millions of our workers more healthy and fit than they now are. More particularly we should note that most of those who are now unhealthy or crippled became so through preventable disease and accidents, such as we should not permit being inflicted on the next generation. If all preventable diseases and accidents were prevented, and if all workers suffering from curable diseases were given proper medical attention industry would become enormously more productive.

The economic loss in the United States resulting from neglect of health supervision in industry has been estimated at $1,000,000,000, and the loss from public accidents in the general population at more than $2,000,000,000, annually. These figures are based on the economic value of the lives lost through preventable or curable disease and through accidents, and on the economic cost of injury to health or to physical fitness.[2] Here is a total of $3,000,000,000, or more than five per cent of the national income at the time covered by these estimates.

While the foregoing discussion of health is concerned primarily with workmen, the rank and file, it applies also to leaders of industries, the business men. Even these suffer from preventable diseases and accidents, although they are better able by their wealth and knowledge to obtain proper medical attention. More attention to the prevention of disease and accident would give us more capable business men as well as more capable employees.

[1] Federated American Engineering Societies, *Report on Waste in Industry*, pp. 347–48.
[2] *Ibid.*, p. 369.

8. Training and education. In training and educating our workers for their tasks, from the lowest to the highest, from the garbage collector to the railroad president, we are notoriously slack. We are a great people for bluff. We get the job or position first and prepare ourselves for the task afterward, trusting to our natural ingenuity to "get by with it." Often we do get by with it, but frequently we succeed in this by reason of the scarcity of well-trained competitors who could do the task better. All this is enormously wasteful. The automobile "mechanic" who does not know the difference between a crank shaft and a monkey-wrench when he goes on his job may get by with it long enough to learn, because his foreman is just learning the trade himself. Meanwhile the life of one's car is reduced. As for our mechanics they often would find no one to teach them, or no school in which to learn their trade, if they tried.

But even those more fortunate workers who are presumably being given in our schools an opportunity to prepare themselves for their life work often profit but little from their chance. Many of our high school and college students alike devote more mental energy to learning how to avoid learning anything than they would need to give to their studies in order to master them. They devote themselves to the cult of bluff instead of to the cult of learning and of service. In recent years, particularly, many have come to believe that the main avenue to opulence and ease is the ability to handle men, and that such ability is somehow or other entirely lost through the acquirement of any kind of exact knowledge, such as mathematics, chemistry, or physics, or through an understanding of the principles of economics or political science, or the reading of history. With the increasing complexity of our industrial organization this point of view represents a national misfortune, since in the future our captains of industry as well as the lesser leaders of our industrial army must be increasingly well-educated men. It is probable that the devotees of bluff will in the near future suffer disillusion, and will return to advise the succeeding generations of students to look to their books. The rule-of-thumb methods in business are no longer so serviceable as in the past, and it may yet come to be a proverb that the self-taught man has a dunce for a pupil, and that the self-made man has bungled his job.

The most useful men in industry in the years ahead will be those who know their mathematics, their chemistry, their physics, their biology, their economics, and other sciences, without which further substantial improvement in the processes, the organization, and the management of industry will be impossible. There is no way in which the product of industry could be more increased than by a national program of preparing every worker to perform his task, and this applies particularly to those workers higher up, who have most to learn if they are to do their work well.

9. Waste resulting from incompetent and dishonest business men. One poor manager of industry, if he has 10,000 men under his control for a period of one year may practically waste 10,000 years of labor, and cause still further waste in the misuse of producers' goods produced by the labor of other men. An equal amount of waste would be caused by a business man with 10,000 men under him for ten years who is ten per cent less efficient than he ought to be. Similar losses may be caused by business men who are competent but dishonest. Incompetent or dishonest business men, if they are numerous and hold positions of great power and responsibility, are nothing less than a national calamity. It is one of the virtues of the price and profit system that it tends to weed out the incompetent, but this weeding-out process is a costly one. The waste occasioned by the hundreds of thousands of incompetent business men who manage by luck, inheritance of property, persuasive tongue, or downright dishonesty, to gain a foothold in business with control over billions of dollars' worth of capital and millions of men's labor is appalling. This loss is only partially recorded in the tens of thousands of business failures reported annually by such credit agencies as Bradstreet's or Dun's. To the waste caused by the incompetent must be added the waste caused by the dishonest business men, who unfortunately often thrive by their dishonesty, as when they are placed in positions of trust. Directors of railroads, for example, may dissipate many millions of dollars' worth of other people's capital to reap a few dishonest millions for themselves. Many great corporations have drifted into bankruptcy and many thousands of investors have been impoverished through the operations of men of this stripe.

When public opinion holds such men to be contemptible thieves,

as it should, and when courts of justice manage to put them behind the bars, losses through dishonest business practices will diminish. Heretofore we have been inclined to condone such practices by the euphemism that "business is business," and to justify them by the legal phrase, *caveat emptor*. But business incompetence causes far greater waste than dishonesty, and to this subject we may well give further attention.

Business men who are less efficient than they ought to be cause waste through faulty management and control of materials, plant, equipment, and men. In part this faulty management and control is to be laid to the personal shortcomings of individual business men in their management of their own plants, and in part to lack of a proper amount of coöperation among business men in a particular industry for the good of the industry as a whole. In relation to this subject every student of economics ought to study the Report on Waste in Industry by the Committee on Elimination of Waste in Industry named by Mr. Herbert Hoover to make an authoritative investigation of conditions in industry in 1920. Setting as a standard of reasonable efficiency in management the results obtained by men who had achieved notable success in the various industries studied, the Committee found that the average business men fell far below this standard, and that the individual shortcomings of business men were responsible for more than fifty per cent of the waste in industry. In other words faulty individual management was held to be responsible for more waste than all other factors combined, including labor, the public, trade relationships, and so on.

10. Examples of waste from faulty management. To bring out more clearly the nature of the waste in industry resulting from faults of management we may note the following concrete examples drawn from the *Report on Waste in Industry* already referred to:

In the shoe industry leather was found to be wasted through lack of training and proper supervision of cutters, and workmen wasted thirty-five per cent of their time waiting for work and materials.

In the clothing industry gambling in cloth affected most of the processes of production and raised the cost of production. In that industry no systematic method of keeping the workers supplied with work was followed, so that it was impossible for the foreman and

his assistants to keep an even flow of material to each operator. The lack of effective planning and administration in one large typical plant wasted one fifth of the workers' time.

A survey of more than 1500 printing plants in New York City showed that less than one sixth of the number kept a cost system or had a knowledge of general costs. How wasteful this lack of accounting was may be surmised from the fact that in 1919 those establishments that had a cost system or had a knowledge of general costs made money, while the five sixths that kept no cost system or had no knowledge of general costs lost money. Under conditions of competition it is a reasonable assumption that those who lose money while others make money are producing wastefully.

In their management of labor the committee found management at fault in various respects. In particular they found a lack of modern personnel relations. Business men learned too little about their employees to obtain reasonably good results. Employees had no unbiased means of approach to employers. Hiring and firing was at the will of foremen and superintendents rather than under the control of employment managers specially prepared for their task. Often men were not assigned to the tasks for which they were best fitted even if such tasks were available in the plant. Men left or were fired for reasons known only to their foremen — left perhaps because of unfair treatment by these foremen. Another fault in labor control was improper or inadequate methods of wage payments. All these conditions tended to produce a high labor turnover. By labor turnover is meant the ratio between the number of employees separated from their positions during the year and the average number on the payroll. In the metal trades the plants for which statistics could be obtained averaged a labor turnover of 160 per cent. Since training a new man to work is a costly process, both in low production and in wasted or damaged materials or tools and machinery, such a high labor turnover is exceedingly wasteful. In the shoe industry it has been estimated that to train an inexperienced man for cutting upper leather costs $576, and to install an experienced man in a different shop costs $50.

These examples of waste are taken more or less at random from the *Report on Waste in Industry*, but they illustrate the nature of the faults of management, and indicate the nature of remedies that

may be applied. In short, business men in positions of responsibility ought to be trained to understand the nature of their problems.

11. Wastes of the business cycle and competition. For the tremendous wastes of the business cycle with its wasteful overproduction of some things, its underproduction of others, its extravagant price movements, and wasteful consumption, and its long periods of idleness of labor, plant, equipment and materials, business men in their individual capacity are not wholly responsible. But if they were better informed in economic history, in fundamental principles of economics, in banking and finance, and had a better knowledge of business statistics, they would be less likely to expand operations recklessly in periods of growing prosperity. They would gain in sound judgment and in prudence, and would be less likely to discover, when the bubble of prosperity bursts, that they had wasted hundreds of millions of dollars of social capital, and ruined themselves into the bargain.

For the great wastes of competition resulting from needless duplication of plants, and from costs of production above the price of the product, individual business men are also responsible only in part. Sounder judgment, wider knowledge, and, particularly, better systems of cost accounting would eliminate much of this waste. But the wastes of ordinary competitive conditions and the wastes of the business cycle result in part from conditions over which any particular business man has no control. These conditions can be controlled only by trade organizations, by central statistical agencies — operated either by the government or by business organizations — and by positive governmental action through the banking system. This matter has already been discussed elsewhere in this volume and requires no further elaboration here.

12. Workers with more incentive to loaf than to labor. One of the unfortunate characteristics of the price and profit system of industry is that it leaves many workers with no strong incentive to do their task well, and to labor whole-heartedly, except the fear of losing their jobs. It is not to be expected that an ordinary workman whose set task consists of monotonous repetition of identical simple motions for eight, ten, or twelve hours a day, or of fatiguing labor in lifting, moving, or carrying heavy articles, or the like, will take pleasure in such work for its own sake. Neither is it to be ex-

pected that he will do such work for the love of the public. That sort of labor is ordinarily performed for the sake of the wages paid to get it done. Furthermore, it is not to be expected that the workmen engaged in such tasks will work with all their might if they see no direct relation between the amount of work they perform and the size of their pay checks. Finally, if they have reason to believe that the less they do per day or hour, the more steady will be their employment, and the higher their wage per day, we may expect to find them making a fine art of loafing on the job. If on top of this they hate their employers, and take pleasure in wasting materials, in damaging plant and equipment and in general hampering production, then we may consider conditions decidedly unfavorable for good work. Yet these are the conditions that are found to a greater or less extent in our industrial system. That these conditions exist is in part the fault of the employers who have in the past devoted too little effort to understanding and getting along with their employees. But it is in part also the natural result of the fallacious economic theory of the workers.

13. The lump of work theory. There is a theory entertained by many people, not only by workmen but by others, called the lump of work theory. This is, in short, that there is only a given amount of work to be done, and the sooner it is done the sooner the workmen will be out of work, or that the more each workman does, the fewer workmen will find employment. It seems, therefore, to be in the interest of the laborers to work slowly and to drag the work along so that it will afford employment to the greatest possible number for the greatest possible length of time. By the same theory fires, floods, earthquakes, and other disasters are blessings to the working class because they make work, and labor-saving inventions are misfortunes which take the bread from the laborer's mouth. Sad to say, this theory has a considerable degree of plausibility if one examines it only superficially. Obviously, if a house is to be built that requires 100,000 bricks, it will afford twice as many days of labor for bricklayers who place 500 bricks a day as for bricklayers who place 1000 bricks a day. If the house is destroyed by fire or earthquake, then more bricklayers will soon be employed to rebuild it. If some man should invent a bricklaying machine, the bricklayers would lose their jobs. It is on the basis of such simple and obvious facts that

the lump of work theory stands. What this theory does not take into consideration is that when houses are less costly, more and bigger houses may be built, or that the money saved in lower costs of building will be expended in the production of something else. The man whose house is destroyed and who must rebuild must thereby forego building or buying something else which would afford employment for labor. In short, loafing on the job, destruction of property, or failure to use labor-saving inventions does not on the whole increase the amount of employment available for labor, but only reduces the quantity of goods and services available for consumption by all the people, including the laborers.

There is this much truth in the lump of work theory. Fires or other calamities may temporarily benefit building laborers by causing a sudden increase in the demand for building labor unaccompanied by an equal increase in the supply. Reduction in the number of bricks laid per day may bring about an artificial scarcity of bricklayers, and raise wages, particularly if the bricklayers have a closed union and can enforce the closed shop, so that the number of bricklayers cannot readily be increased. The invention of a labor-saving machine, like the power loom, may deprive old workmen of their trade, as in the case of the hand-loom weavers. But such results are only local and temporary in their nature. In the long run anything that increases the output per day per worker will tend to raise real wages because it increases the total output of industry per capita out of which wages must be paid; conversely, anything that reduces output, or the total net addition to the wealth of the community, reduces wages because it reduces the only source from which they can be paid — the available supply of goods and services. There is perhaps a possibility that by far-sighted and skillful manipulation which would tend to make labor relatively in greater demand than before as compared with the demand for other factors in production — land, capital and management — the total share of labor in the distribution of the product of industry might be so much increased that it would more than offset the diminution caused thereby in the total output of industry. But it is almost a certainty that by any such tactics labor would actually so restrict total output of industry that its larger share of the restricted output would be smaller than its relatively smaller share in the greater output that flows from greater efficiency of labor.

Parenthetically it may be noted that there is a close relationship between the lump of work theory and some protective tariff arguments. Protectionists often argue just like these workingmen, that there is only a given quantity of goods demanded, and that the more there is imported the less there will be left for domestic producers to supply. For more valid arguments in favor of protection the reader is referred to our chapter on that subject.

14. Day wages and piece wages. A knowledge of sound economic theory may tend to remove from the workman the incentive to loaf on his job and to oppose improvements in methods of production. But a more direct incentive to wholehearted effort is a clear perception of the relation between the efficiency with which he labors and his real wages. Employers who can convince their workmen that their pay varies directly with the effectiveness with which they labor will obtain better results than those who cannot. Many experiments have been and are being carried on with this end in view. We cannot here discuss in detail various methods of wage payments, or of wage adjustments, but we may enumerate some of the more common methods as well as some comparatively recent innovations, and note some of their essential features.

One of the most common methods of paying for labor is to pay by the hour, day, or week. When large numbers of men are employed under this system and there is lack of close supervision it tends to discourage steady and effective labor, because there is no close relation between the amount of work performed and the amount of pay received. The slacker and the waster may receive the same pay as the careful, industrious worker. The rate will be, let us say, fifty cents an hour, or five dollars a day for a ten-hour day, and every one will receive this rate of pay. Naturally if a worker becomes too obviously a loafer he may be fired, but there is a great difference between working just hard enough when the boss is looking not to get fired and working with a reasonable degree of industry. It is of course possible in some cases for the foreman to single out some workers as deserving a little extra pay because of their greater efficiency, and this is sometimes done. But it is easier to make the pay uniform for all workers of a given class; often trade-union rules practically require that this be done.

It was discovered long ago that working men when paid by the

piece produce more of a given product per day than when paid by the day, for the obvious reason that a large output means more wages than a small output. Therefore the piece-work system of wages has been put into practice by many employers, men being paid a stated sum, for example, per ton of coal mined, or per pair of shoes lasted. But this system has serious limitations. First of all, it can be applied only where the work is standardized; that is to say, where all units of output are practically alike and require about the same amount of labor. It tends also to cause the worker to waste his materials and to produce an inferior product unless he is held strictly to account.

The piece-work system may also be disadvantageous to the employees. When first substituted for time work it may cause them to speed up and even to overexert themselves to gain the promised reward of higher wages. After they have established a higher standard of output the employer may cut the piece rate so that although they work harder and produce more than before, their wages are but little, if any, higher. If only a few employers in any industry apply the piece-work system they may cut the rate because they will conclude that their wages per day ought not to be much higher, and need not be much higher, than the wages paid by their competitors. If all the employers in a certain industry adopt the piece-work system and thereby increase their total output, the price of their product may fall so much as to compel a reduction in the rate of wages per piece. Such cutting of piece rates might still leave the workers concerned better off than before if all industries became more efficient, turned out larger supplies of commodities and caused a general fall in the price of goods and services that workingmen buy with their money wages. But applied only here and there it may leave the particular workers concerned working harder than before, with no higher money wages, and with costs of living approximately the same.

Because of the obvious disadvantages of both the ordinary time wage and the piece wage employers have tried out various other methods of wage adjustment.

15. Premium system; profit-sharing; stock ownership; industrial democracy. These various other methods have all had for their main purpose the establishment of a closer relation between the

efficiency of labor and the wages paid. One method is called the premium system, of which there are a number of variations. The essential idea, however, is to establish a standard output per worker per day or hour, and then to offer a premium to those workers whose output exceeds the standard. Wages do not rise exactly in proportion to increase in output, so the incentive to overexertion on the part of the worker, and the incentive or necessity for cutting the agreed-upon wage rate by the employer are both less than under the ordinary piece-rate system. It is said that this system has given good results in some cases.

Another method is referred to as profit-sharing, of which there are also many variations. In brief this system of wage payments gives the workers in addition to their regularly agreed upon wages part of the profits of the business. It is held that under this plan the workers are given an incentive to do their best to increase the profits of the concern and thus to increase their own wages. When profit-sharing is applied in good faith by the employers it does tend to increase the efficiency of the workers. It tends also to reduce labor turnover, since the workmen are more inclined to remain to the end of the year to claim their share of the profits.

A closely related method is to encourage the workmen to buy stock in the corporation by which they are employed. This has the double advantage of encouraging thrift and of giving the workers an incentive to produce efficiently in order to earn larger dividends for their stock. The possible results of this method in eventually giving the workers control over the instruments of production and thus bringing into harmony labor and capital have been noted elsewhere in this volume. Closely related to stock ownership by employees which would give them control or partial control over their corporation, is the plan of industrial organization referred to as industrial democracy, which we have already discussed briefly in an earlier chapter. The plan of industrial democracy would give the workers representation on the board of directors, and thus a voice in the management of the business organization for which they worked, including of course a voice in the determination of their own wages. It is doubtful whether such control or partial control could wisely be given to the workers except as a natural result of their gradual acquirement of shares of stock in the enterprise. Control without

ownership would tend to open the way to benefits without responsibility. The workers might have much to gain and little to lose by ruining their employer. The ideal solution of the labor problem, if there is any ideal solution, seems to consist in the employees' being given a good opportunity through wages as generous as circumstances permit, and through their own thrift, to buy control of their corporations and thus in effect become their own employers. This would give us profit-sharing, industrial democracy, coöperation, all in one. As nearly as any form of industrial organization it would give the workers an incentive to labor whole-heartedly at their tasks. Yet even under this system there would be loafers, slackers, and wasters. There would still be workers who reasoned that neither their regular daily wages nor the dividends on their stock would be materially affected by the quality or quantity of work which they themselves performed, because any particular worker out of thousands employed could not by his own efforts much affect total production.

16. Loss results from policies of restricting output. It is doubtful whether there is any one best method of adjusting wages in such a way as to gain the best results. Some employers in some industries may find one method best for their particular purposes, and others may find other methods best. But any method that is carefully worked out is likely to work better than some slipshod method to which no proper amount of thought has been given. In all cases the end in view ought to be such working relations between employers and employees as will tend to lead to the maximum production of goods and services with a given quantity of labor, management, materials, plant, and equipment. The whole problem is complicated by the tendency of laborers, either individually or collectively as unions, to restrict output with the idea that this is to their advantage, and by the tendency of business men to form combinations or agreements in restraint of competition and to restrict output by operating their plants at less than practical capacity in order to maintain higher prices.

It would greatly increase human welfare if both employers and employees could be brought to see quite clearly that although restriction of output may bring temporary and local advantages to particular industries or particular groups of workers, provided other industries and other groups of workers do not apply similar restric-

tions in order to gain similar advantages, in general and in the long run nearly every one suffers from restriction of output, including even those who initiate the practice. If in the past this generalization has not always held true it has been because some did not know that others were pursuing a policy of restriction, or because some lacked the means or instruments of restricting the total quantity of the thing they had to sell. But with the more widespread knowledge of industrial conditions that exists to-day monopoly and restriction quickly breed more monopoly and restriction, and as we have said elsewhere the high prices and the high costs hatched by the monopolist soon come home to roost.

17. Tremendous possibilities of increasing output. In the foregoing discussion of business men and their employees and the relations between them we have pointed out important facts and conditions which cause the productiveness of industry to be far lower than it need be. That these conditions can be removed in large part by well-considered efforts well within our capacity as a people is beyond question. If they were so removed output of goods and services per capita in the United States could be greatly increased, possibly doubled within a generation. At the same time hours of labor could be reduced in at least some industries, and working conditions could on the whole be made more pleasant, to the end that men no longer need to call that part of their life lost that they spend in toil. Labor might become a pleasurable pastime rather than a clock-watching process.

Concerning the other conditions we have named as favoring high productivity of industry — rich and abundant natural resources, a great supply of capital, and sound political and financial conditions — we need to say little here. We are fortunate as a people in possessing rich and abundant natural resources. These we cannot, of course, increase. Some of our natural resources we have in the past used wastefully, to our present cost, and some we are still using wastefully, to our cost later on. Capital accumulation in this country has been on an enormous scale, and this has been made possible largely by our abundant natural resources rather than by any extraordinary degree of industry, thrift, or business ability of our people, although industry, thrift, and ability we have possessed in fair measure — more ability, perhaps, than industry and thrift. In

respect to our natural resources we should see to it that they are not wasted or destroyed, and in respect to accumulation of capital we should see to it that it continues at an increasing pace, because any considerable diminution in either will tend to diminish the productivity of industry. As for our political and financial conditions, they are reasonably sound. But there is room for improvement, since it is said on good authority that our lax enforcement of law and inadequate punishment of criminals is costing us billions of dollars of wealth each year. Furthermore, our shifting and uncertain policies in respect to government regulation, taxation, and the tariff seriously affect industrial output. In respect to financial conditions our greatest weakness is more or less unbridled and exceedingly wasteful speculation in securities, commodities, and real estate, which could be largely prevented by a more systematic price-stabilization policy applied through our banking system.

Having now pointed out the tremendous possibilities of improving the economic conditions of our people by improving conditions of production, and having shown that conditions of production can readily be improved by available means and practicable methods, let us note further the possibilities that lie in various equalitarian programs.

18. Greater degree of equality desirable; methods of promoting equality. As already indicated, comparatively little can be gained from equalizing incomes, unless such equalizing tends to increase the total output of industry, because the poor would still be poor if all the available income of the rich were distributed among them. Furthermore, there is some danger of diminishing the productivity of industry by unwise methods of promoting equality. But as we have already stated, greater equality of incomes than we now have would be advantageous if we could bring it about without hampering production and thereby reducing the total social income, and it would be particularly advantageous if it tended to increase the productivity of industry and thus to increase the total social income. Let us then consider by what methods we may promote equality, and what the results of these methods of promoting equality are likely to be on production.

We can promote equality or diminish inequality in incomes by cutting down the size of the larger incomes, or by increasing the size

of the smaller incomes, or both. Most programs for decreasing inequality have as their aim not the cutting down of large incomes, but the increasing of small incomes. If they cut down large incomes it is ordinarily merely as a convenient means to the end of increasing small incomes.

For instance, when we levy severe and highly progressive income and inheritance taxes, we cut down the large incomes, directly by the income tax and indirectly by the inheritance tax. We do this, not primarily with the intention of robbing the rich, but with the intention of helping the poor, either by reducing in this way the burden of taxation resting on their shoulders and thus leaving them a larger portion of their incomes to spend for their own good, or by increasing the revenue of the government which may be laid out in ways that will benefit the poor and thus become indirectly a part of their real income. Again, when we prosecute and try to destroy monopolies and semi-monopolies, or regulate the rates of railways and public utilities, we have primarily in mind reducing the cost of goods and services to the public, mainly the poor — since most people are poor — and thus increasing their real income measured by the purchasing power of their money incomes, rather than merely limiting the size of the incomes enjoyed by the monopolies, which are owned primarily by the rich. The single tax, or the appropriation of economic rent by the State, has the same general purpose — to relieve the poor of taxation by raising all or most of the revenues of the State from landowners, presumably the wealthy, although the single tax has a broader basis in theory than this. Now such taking from the rich and giving to the poor is, taken by itself alone, without a consideration of its effects on production, a desirable thing, as we have already stated, if we accept the economic principle of diminishing utility and the social policy of the greatest good for the greatest number. Every dollar we take from large incomes and add to small incomes tends, at least theoretically, to increase the sum total of human enjoyment.

19. Probable effects of redistribution of wealth on the poor. Let us consider the probable effects of such redistribution of wealth upon the poor. For them it may mean merely more idle and perhaps harmful pleasures, or other extravagances, or a mere multiplication of numbers. It might conceivably mean also that the poor would

work less than before, if we assume that poor men will work six days a week if they have to in order to survive, but only three days if three days' wages will suffice for seven days' needs. Undoubtedly there are poor people who are thus affected by an increase in their daily income. But in most civilized countries these seem to be the exception rather than the rule. In the United States we find that in a large measure increases in the income of the masses have been spent in the interest of health and education, and that a great deal more money per capita might be spent for those purposes for the good of the country. If money taken from the rich and given to the poor directly or indirectly is thus spent to improve the health and the education of the masses there are two secondary or remote consequences in addition to the primary or immediate result of a tendency toward equalizing incomes. In the first place, the plan, by making the workers healthier and better educated, increases their capacity to produce and thereby tends to increase the total output of goods and services. In the second place, by increasing the number of educated individuals relatively to the number of uneducated or poorly educated people, it tends to increase the competition for well paid positions and to reduce the competition for the poorly paid jobs, and thus tends to bring about greater equality in earning capacity by forcing the low wages up and the high salaries down. Now all these results are desirable, both the immediate and the remote.

20. Probable effects on the rich; conclusions. But we must consider also the effects on the rich of such redistribution of income. It is commonly asserted that to take from the rich part of their incomes in the form of income taxes or other taxes tends, for various reasons, to retard the accumulation of capital, and even, in extreme cases — as when heavy inheritance taxes are levied — to dissipate the capital accumulations of the past. Undoubtedly if taxation of the rich is carried to an extreme such undesirable results will follow. We have in our chapters on taxation already discussed the reasons for holding that heavy taxation of the wealthy accompanied by low taxation, or exemption from taxation, of the poor may retard the accumulation of capital or dissipate past accumulations. We have also pointed out why there is reason to believe that progressive taxation applied in moderation is not likely to bring these evil conse-

quences in any marked degree. Without repeating here our discussion of the results of such taxation, we may conclude that sound public policy justifies a moderate amount of taking from the rich to give to the poor through the process of taxation and public expenditures, and it justifies also such government regulation of industry as tends to protect the poor from economic oppression by powerful and heartless business organizations for the benefit of the rich. More concretely sound public policy justifies progressive income and inheritance taxes, public school systems, public health and recreational service in moderation, workmen's compensation laws, regulation of railway and public utility rates, prosecution of combinations to restrict output and unreasonably to raise prices, and the like. Whatever hampering effect these government policies may have on productivity of industry is more than offset by the direct gain in equality of incomes and the further gain that comes from making the workers healthier, happier, and more productive members of society.

But lasting and substantial amelioration of the economic conditions of the masses can come only from greater productivity of industry. It is only as a means of promoting such productivity of industry that equalitarian programs can materially aid the poor.

EXERCISES

1. Two possible methods of improving the conditions of the poor are equalizing incomes and increasing the productivity of labor. Which of these two offers the greater possibilities? Why?
2. What are the advantages and the dangers of taking from the rich to give to the poor? By what means do we at present take from the rich for the benefit of the poor?
3. State the conditions favoring high productivity of industry in any country. To what extent do these conditions exist in the United States? In what respects do we have ample room for improvement?
4. In what ways is management responsible for waste in industry in the United States?
5. Explain how unsound economic theory diminishes the productivity of industry in the United States.
6. Name and discuss several projects which may give workmen a greater incentive to work effectively at their tasks.

REFERENCES

I

Carver, T. N. *Essays in Social Justice*, chapters 10, 14, and 15.
Edie, L. D. *Economics: Principles and Problems*, chapter 38.

Fairchild, Furniss, and Buck. *Elementary Economics*, chapter 55.
Ford, James. *Social Problems and Social Policy*, chapter 22.
Hobson, J. A. *Evolution of Modern Capitalism*, chapter 17.
Seager, H. R. *Principles of Economics* (1923 edition), chapters 31 and 34.

II

Carver, T. N. *Present Economic Revolution in the United States.*
Chase, S. *The Tragedy of Waste.*
Commons, J. R. *Industrial Government.*
Committee of Federated Engineering Societies. *Waste in Industry.*
Emmett, B. *Profit-Sharing in the United States.* (Bulletin 203, United States Bureau of Labor Statistics.)
Feldman, H. *Regularization of Employment.*
Leitch, J. *Man to Man.*
National Industrial Conference Board, *Works Councils in 1919.*
Simons, A. M. *Personnel Relations in Industry.*
Slichter, S. H. *Turnover of Factory Labor.*
Taylor, F. W. *Scientific Management.*
Tead, O., and Metcalf, H. C. *Personnel Administration.*
Veblen, T. *Theory of the Leisure Class, Theory of Business Enterprise.*
Webb, S. and B. *Decay of Capitalist Civilization.*

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